

CENTRAL STATES WATER

The Official Magazine of the Central States Water Environment Association, Inc.



GLOBAL WATER
STEWARDSHIP

SERVICE TRIP *Report*



Central States Water Environment Association
1021 Alexandra Blvd., Crystal Lake, IL 60014
ADDRESS SERVICE REQUESTED

PLANT PROFILE:

Northern Moraine WRD



PLUS:

2025-26 Buyers Guide

GWS Trip Update: Volunteers Bring
Lasting Impact to Costa Rica

Call for Abstracts/Call for Awards



LOOKING FOR A SCREW PUMP UPGRADE THAT'S BABA-COMPLIANT? LAKESIDE REPLACES ALL BRANDS & TYPES...AND MEETS REQUIREMENTS.

Lakeside's screw pumps offer the ideal and cost-effective "drop in" replacements for less reliable designs. Improve pumping performance and reduce maintenance costs with our superior dual upper bearing design and heavy-duty self-aligning lower bearing designs. For decades we've been the go-to source for replacing all screw pump brands. Replacements typically require little or no structural modifications. It's what you expect from Lakeside Equipment—known for nearly a century for efficient and dependable operation in all wastewater, drainage and industrial applications.



Cleaner Water for a Brighter Future®

Speak to one of our experts at **630.837.5640**, email us at **sales@lakeside-equipment.com** or visit **lakeside-equipment.com** for more product information.

For more information on how you can achieve Lakeside quality and performance, contact one of our experts at **630.837.5640**, email us at **sales@lakeside-equipment.com** or visit our website **www.lakeside-equipment.com**.



Screw Pumps

Open Screw Pumps
Enclosed Screw Pumps



YOUR ASSET & DATA MANAGEMENT SOLUTION

WE ARE **WATER-INDUSTRY** PEOPLE WHO MADE SOFTWARE, **NOT**
SOFTWARE PEOPLE SELLING TO THE WATER INDUSTRY.

ASSETS

- **Fix stuff faster-**
get more done
- **Prevent critical**
asset failure
- **Capture knowledge**
before retirement

DATA

- **Say goodbye to**
clipboards
- **Avoid errors &**
miscommunications
- **Get out-of-range**
notifications



FIND OUT WHY SOME OF **ILLINOIS' AND MINNESOTA'S LARGEST**
COMMUNITIES TRUST WATERLY TODAY TO MANAGE
THEIR ASSET AND PLANT DATA.

SCAN QR CODE FOR FREE SWEATSHIRT
TODAY:

WATERLY.COM • 833-492-8370 • SALES@WATERLY.COM





Since 1958

LAI, Ltd.

EXPERT PUMP REPAIRS

NOW AVAILABLE!



Repairing pumps of any size with precision & care!



LAI, Ltd. is a manufacturers' representative firm serving the Water, Wastewater and Stormwater Markets in Northern Illinois, Northwestern Indiana, and Wisconsin since 1958. LAI is proud to partner with Kennedy Industries on select repairs. Together we offer the most advanced pump repair solutions. 

IL - 5400 Newport Drive, Ste 10 - Rolling Meadows, 60008

WI - 2935 S. Fish Hatchery Rd. #116 - Madison, 53711



IL - 842.392.0990



lai-ltd.com



WI - 608.298.7271

FEATURES

Young Professional Spotlight: Rahim Ansari	19
Plant Profile - Northern Moraine WRD	21
Safeguarding Water	27
GWS Trip Update and Problem Statement	31
Megatrends are Demanding a Change in How We Plan, Design, and Construct Water Infrastructure	41
Celebrating the Next Generation: "Water's Worth It" Essay Contest Winners	47
2025-26 Central States Water Buyers' Guide	51

DEPARTMENTS

Messages

President's Message	7
WEF Delegates' Message	8
Advertiser Information Center	62

CSWEA/WEF News

Member Profile: Gina Lewis	16
Call for Abstracts	57
Call for Awards	59
2025 Events Calendar	61

Section News

Minnesota Section Chair Message	11
Illinois Section Chair Message	12
Wisconsin Section Chair Message	14

Follow us on  @cswea Link up with CSWEA on  **Linked in**

Published by:



Tel: (866)985-9780/Fax: (866) 985-9799
www.kelmanonline.com info@kelman.ca
 Design/Layout: Tracy Toutant
 Marketing Manager: Jeff Kutny, jeff@kelman.ca
 Advertising Co-ordinator: Stefanie Hagidiakow
 Federal tax# 23-7378788

©2025 Craig Kelman & Associates Ltd.
 All rights reserved. The contents of this publication, which does not necessarily reflect the opinion of the publisher or the association, may not be reproduced by any means, in whole or in part, without the prior written consent of the publisher.

Central States Water, the official magazine of the Central States Water Environment Association, Inc., is published four times per year. Send comments, news items, gloss photographs or digital images to Mohammed Haque, mhaque@cswea.org

Send undeliverable addresses to: CSWEA, 1021 Alexandra Blvd, Crystal Lake, Illinois 60014



President

Tim Wedin
 Metropolitan Council
 P: 651-602-4571
timothy.wedin@metc.state.mn.us

1st Vice President

Rich Hussey
 LAI, Ltd.
 P: 847-392-0990
rhussey@lai-ltd.com

2nd Vice President

Mary-Frances Klimek
 Racine Wastewater Utility
 P: 262-636-9521
maryfrances.klimek@cityofracine.org

Treasurer

Alan Grooms
 Madison Metropolitan SD
 P: 608-222-1201
alang@madsewer.org

Immediate Past President

Troy Larson
 Strand Associates, Inc.
 P: 608-251-4843
troy.larson@strand.com

WEF Delegate '23-'26

Anna Munson
 Hazen and Sawyer
 P: 612-309-9333
amunson@hazenandsawyer.com

WEF Delegate '22-'25

Elizabeth Heise
 Trotter & Associates
 P: 630-587-0470
eheise@trotter-inc.com

PWO Representative '25-'27

Eric Lynne
 Donohue
 P: 952-920-1811
elynne@donohue-associates.com

S & YP Representative '25-'26

Rahim Ansari
 MSA Professional Services Inc.
 P: 715-304-0425
ransari@msa-ps.com

Minnesota State Section Trustee '24-'26

Jackie Strait
 HR Green
 P: 651-659-7734
jstrait@hrgreen.com

Illinois State Section Trustee '25-'27

James Kerrigan
 Fox Metro WRD
 P: 630-3016866
jkerrigan@foxmetro.org

Wisconsin State Section Trustee '25-'27

David Diehl
 Black & Veatch
 P: 414-455-1607
diehldl@bv.com

Follow us on  @cswea
 Link up with CSWEA on  **Linked in**

Seeing your facility from a 360° **PERSPECTIVE**

“Virtual design lets us help
you be fully-integrated in the
design process and get what
truly works for your team!”

*Steve Seibert,
Lead BIM/Revit Specialist*



Water Engineering and Beyond

Award-Winning Best Place to Work

Creating Connections

By Timothy Wedin



Part of my day-to-day work includes management of connections to our regional interceptor system. Our Connection Permit Team reviews requests to ensure that the proposed connections meet our standards. These connections are an important part of serving the region; helping it grow and develop while ensuring the health and safety of the public.

Similarly, the connections that we make throughout our lives are instrumental in our own growth and development. The people that we interact with throughout our career show us new ways to think about our work, providing us with new insights that we carry into future projects. This is frequently a two-way street, as we present our perspectives and skills to others, influencing the way that they approach their day-to-day activities. These connections that we form are important

parts of our work, helping us grow and develop as professionals and leaders.

One of our goals at CSWEA is to provide opportunities to make and foster those connections with professionals throughout the association. To introduce members to others with different backgrounds, with different jobs, and with different outlooks to encourage the formation of these connections. This not only helps our members grow and develop, but also helps the association as members with different skill sets and perspectives help the association grow.

Part of that effort includes providing opportunities to connect with other members throughout the year. The YP Committees plan numerous activities throughout the year, including Trivia Nights, attending baseball games, WRRF tours, and other activities that provide an opportunity for members

to connect with others in the industry. The Stormwater Committee holds bike tours to learn about improvements to stormwater management systems, finishing with a happy hour outing at a nearby restaurant or brewery. Many of our events include a social hour where you can get to know more about the other attendees. You might leave the next event with a new book to read, a new musician to listen to, or a new trail to hike!

The connections that we make with our coworkers, clients, and other CSWEA members contribute to our personal and professional growth. Forming those connections can be challenging and rewarding, requiring us to step out of our comfort zones to interact with people who we are unfamiliar with. CSWEA events and activities can help you break the ice and more easily create those connections. [CS](#)

Loyalty at Lakeside as Dan Widdel becomes new President

Dan Widdel has become the new President of Illinois-based Lakeside Equipment Corporation, who since their formation back in 1928, have become a highly renowned provider of wastewater treatment systems, including screens, grit collectors, clarifiers, screw pumps, and biological processes.

With Lakeside for 25 years, Dan steps up to replace retiring President, Karen Wolk, who served the employee-owned company for 40 years. Karen had been in the head role for the past three years, following the sudden passing away of Lakeside's much-admired President, Steve Eckstein.

"This is a huge honour for me to follow in the footsteps of those who have led Lakeside Equipment Corporation so diligently for almost a century," said Dan Widdel.

"Despite some challenging times in our long history, including the Pandemic, and the tragic loss of our former President, we have stuck together as a very solid team, determined, no matter what, to deliver the very best solutions for our customers. I would like to sincerely thank Karen Wolk for her huge contribution in pushing Lakeside forward."

Jim Snyder (Lakeside's Production Manager), who has been with the business for 43 years, moves up to become joint Vice President, sharing the new mantle with Jim McKee (National Sales Manager), who has been at Lakeside for 25 years.

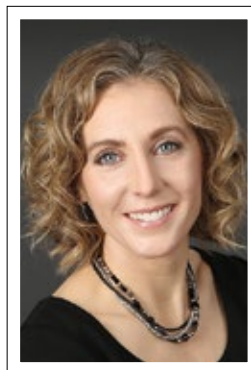
Meanwhile, Jamie Marshall has joined Lakeside as its new Controller. She recently completed her Master of Business Administration, together with achieving a human resources graduate certificate.



Cleaner Water for a Brighter Future®

Shaping the Future: WEF House of Delegates and CSWEA Strategic Updates

Written by Anna Munson



Anna Munson



Liz Heise

By the time this issue is released, we will be through the chaos of WEFTEC. This year, WEFTEC will be held in Chicago from 9/26 – 10/1. CSWEA will be partnering with IWEA to host a mixer that is always a great time so I hope to see (or to have seen, since this will be published after it is over) many of you there!

The WEF House of Delegates will hold our annual meeting on 9/27 and our joint activity with the Community Leadership Council on 9/28. Typically, these days are filled with strategizing and networking to build a plan for the following year.

This fall has been mostly planning for WEFTEC, and working through strategic plan implementation. There was a quarterly HOD

meeting held on 7/16 where updates were provided from all of the different committees.

The nominating committee announced that two new WEF Trustees were selected, as well as the new WEF Vice President. All three nominations passed and will be implemented as of WEFTEC This year.

The Water Advocacy committee announced that there are now more than 2,000 people signed up to be Water Advocates. This is an initiative through WEF to help people reach out to and connect with elected officials on important water quality issues. If you are not already signed up, I highly recommend you join to make your voice heard! To sign up go to <https://prod.wef.org/cwe/practice-areas/government-and-regulatory-affairs/water-advocates-program>.

The Water Advocacy group also explained that the WEF Scholarship that was provided to 25 young professionals was instrumental in getting a record number of YP's to the Water Fly-In in April. This program will continue in future years. It was improved this year by providing scholarship recipients with a more structured program to meet each other and develop a cohort.

This group is working on a new initiative to engage elected officials in sharing their Water Stories. They hope that working with key elected officials to share these stories will help raise public awareness about the importance of our industry.

The HOD Strategy and Implementation committee is working on elevating the visibility and stature of the Delegate's at Large. These

DAL Name	MA	DAL Constituency
Doug Kobrick (2025)	AZ Water Association/AZWEA	Originally aimed for DEI but shifted to budget and MAs
Kristiana Dragash (2025)	Florida (FWEA)	Caregivers
Zachary Loeb (2027)	Florida (FWEA)	YP Utility Community Leader & Student Engagement
Cara Jung (2026)	N/A (no current MA, hoping to join Central States soon)	Students and Young Professionals (or Emerging Leaders)
Peter Garvey (2026)	NEWEA(VWEA/CWEA	WEF Water Advocates
Leigh Thomas (2026)	WEA of Texas	Women engineers that have dedicated their careers to the clean water mission while actively supporting the next generation of women professionals to ensure the mission is carried forward.
Kam Law (2026)	Illinois WEA	Asian women
Scott Foley (2025)	Missouri WEA	Industrial Waste
James Hawthorne (2027)	WEA of South Carolina	Historically Black College and University graduates in the industry, as well as new WEF members.
ValaRae Partee (2025)	Georgia AWP	Black Women in Water
Jayla Berry (2027)	WEA of South Carolina	Blacks in Water/Female Blacks in Water
Archana Sharma (2027)	WEA of Texas	Immigrant Workforce

are delegates who apply to the HOD to represent underrepresented constituents. A list of the Delegates at Large is included.

The HOD accepts Delegates at Large by application each year. The application for this year has closed, but if this is something you find interesting, please don't hesitate to reach out for more information and consider applying in the future.

The Workforce Development committee sent out a survey to WEF utility members and received feedback from over 200 utilities, which was twice as many as they were expecting! This goes to show the importance of continuing the workforce develop discussion! They are working on putting a toolkit together for utilities to use in hiring/maintaining members and plan to have it ready by WEFTEC.

WEF hosted three in person and one virtual WEFMAX over the summer. WEFMAX feedback is being used to develop goals and action items; Four goals are:

- Build a stronger and robust network of member associations (increase MA-MA communications)
- Support communication of WEF's priorities to members
- Support and grow WEF Communities
- Participate in WEFTEC to advocate for MAs and grow their membership.

WEF also gave a presentation on the WEF approach to Diversity, Equity, and Inclusion. They explained that they are working with a lawyer who is a specialist in the matters of non-profits from the DEI lens. He explained the state of non-profits with respect to navigating the Federal Administration's recent stance on DEI related activities. He explained that nothing in diversity, equity, and inclusion is unlawful but that there are areas of concern that using the term DEI may make us a target. He explained that the Civil Rights Act of 1866 prevents making or enforcing contracts based on race. There is concern that federal agencies

will not send their employees to conferences with a DEI focus/track. He also explained that WEF does not appear to be a target at this time, but since it is an environmental based program, it may be in the future. At this time, there will not be any major changes to how WEF approaches DEI, but they will continue to monitor the situation and work with their lawyers to adjust when it is necessary.

Finally, at the Virtual WEFMAX, the Nebraska Member Association presented on their successes in development of student chapters, and student and YP mentoring programs. They also shared that they have a toolkit available for others who are interested in these goals as well. These are goals that CSWEA has been discussing related to our new strategic plan. The CSWEA team who is leading this effort will be working with the NWEA leaders to adapt their toolkit to fit the CSWEA needs and implement in the coming year or so. [CS](#)

“The Water Advocacy committee announced that there are now more than 2,000 people signed up to be Water Advocates.”



Where do you find Carollo
Innovation?

In our culture
In our solutions
In our communities

Like water itself, innovation flows through every challenge and shapes new possibilities. For over 90 years, Carollo has pioneered breakthroughs in water technology – from resilient infrastructure protecting growing communities to groundbreaking solutions safeguarding public health and ecosystems. At Carollo, innovation isn't just about what's new – it's about what's necessary. Every advancement, every improvement, and every solution flows from a single purpose: shaping a future where water enriches every community it touches.

carollo®

800.523.5826 / carollo.com

YOUR TRUSTED PARTNER



WORKING HARD 24/7

Introducing the MevaScreen® RSM Monster! Our progressive step fine screen works in facilities with extreme grit or high screening loads in difficult operating conditions. The new screen's patented process provides ease of maintenance and can be tailored to the facility's specific application needs. With a greater than 80% debris removal rate, it's an excellent choice to protect sites with high solids removal requirements.



Recognizing Excellence and Hard Work



By Shanna Czeck

There is so much I love about summer – the warmth and sunshine, the vibrant colors, the sweet smell of flowers. I feel like things slow down and speed up simultaneously. The pace can be slower when gathering with family and friends or taking in a concert or a game. This can feel really refreshing and helps me recharge. The pace can also be much, much faster when the construction season arrives and planning for budgets and next year's project begins. With all the busyness, it can be a challenge to find time for it all. I hope that you all have been able to find a good balance and are moving towards fall feeling like you got to check things off your bucket list, both professionally and personally!

The Minnesota Section has been busy in a really great way. There have been gatherings and planning is underway for several events like the Conference on the Environment and the 99th CSWEA Annual Meeting. The Minnesota Exchange (MNX) was held in June. Attendees learned about the section budget, committee chairs gave updates, and upcoming section business was discussed. We were able to fill several committee chair spots and now the Section is operating with all positions filled – both among officers and committee chairs. This is excellent news, and we are looking forward to progressing initiatives that were discussed during the meeting.

Sometimes it's hard to keep the momentum going through the summer and into the fall. With so much happening in our day to day lives – it seems that we are constantly doing more with less. Managing limited resources, juggling multiple priorities, and staying focused under pressure are required to make progress towards completing projects and initiatives. It takes creativity, efficiency and resiliency to make this progress. Professionals in our industry exhibit these characteristics every day. We do work that

is behind the scenes, and often underappreciated, but the services that we provide are critical to the communities we serve.

Each year, we have an opportunity to recognize professionals in our industry for the outstanding work they do. Recognizing individuals by nominating them for an award is a powerful gesture. It not only celebrates their achievements but also reinforces a culture of



appreciation and excellence within our organization. There are awards that recognize all areas of our field and they are available at the CSWEA and WEF levels. The nomination process is straightforward and is available on the CSWEA website. I encourage you to reach out to myself or any of the section leadership if you want to learn more about the nomination process!! [CS](#)

EMERGENCY CHLORINE SHUTOFF SYSTEM

Now With More Alarm Outputs -
"Low Battery" & "Not Armed and Ready"

- ◆ Closes valve within seconds
- ◆ Fire code approved as alternative for scrubber in most states
- ◆ Compatible with all direct mount vacuum regulators
- ◆ No tools or adapters required for installation on valve



HALOGEN
VALVE SYSTEMS, INC.



www.halogenvalve.com

Why Human Connection Will Always Drive Our Industry Forward



By Tom Romza

In late August, I had the privilege of hosting my first meeting as Illinois Section Chair, a moment that reminded me how vital human connection is in our work. While the agenda was filled with committee updates and technical anecdotes, the real energy was in the side conversations, shared laughs, and “off-the-record” moments that followed. There was a real sense of purpose in the room and, despite our wifi difficulties, productivity that can only be achieved by shared values and community goals.

That same week, my oldest started Kindergarten, and let me tell you, that’s a whole different kind of community! (obligatory proud Dad pic incoming)

Watching my son walk into school for the first time, knowing the world of learning, relationships, and growth he was about to begin reminded me, again, of the foundational role that human connection plays in development...Whether it’s in a classroom or a professional organization’s Chapter Meeting, that connection is what stimulates progress.

Here’s what I have been introduced to so far in the school community: PTA’s, classrooms, drop-off lines, after school events, email blasts...it’s a whole ecosystem of engagement. And it’s not so different from CSWEA...Committees, seminars, conferences, happy hours, and of course, EMAIL BLASTS.

Behind all the infrastructure designed, every policy that has been written, or even every poop that has been treated, there has been a human with an idea and a network of support to bring it to life.

As artificial intelligence and automation become more embedded in our workflows, we gain efficiency, but we must not lose the human element that drives our passions. Optimization is great, but it can’t



replicate mentorship, collaboration, and friendship that define our field. Nor can it build the trust that is developed at a meeting or over a cup of coffee at a conference.

So let’s continue to show up as engineers, operators, managers...as people who care about each other and the quality of our water and environment. Continue to bring real-life problems and real-life solutions. Engage with each other on human level. Embrace the tech but never forget that people are why we exist.

Get Involved! Stay Connected! Keep Showing up! BEAR DOWN! **CS**











THE LARGEST PUMP SERVICE ORGANIZATION IN THE UPPER MIDWEST



CONTACT US!
(515) 265-2222
ELECTRICPUMP.COM



**Metropolitan
Industries, Inc.**

UPGRADE YOUR WATER MANAGEMENT WITH METROPOLITAN INDUSTRIES

Prefabricated Housed Systems

Metropolitan offers **versatile prefabricated housed packages** suitable for various applications, such as lift stations and pump stations. These systems arrive at job sites fully piped, pre-wired, pre-tested, and **ready for immediate connection**.

Booster Pumps & Controls

Metropolitan's packaged water booster systems provide municipalities with the capabilities to **supply reliable water distribution** throughout their areas of service. Our water booster systems can be equipped with our own manufactured U.L. rated process controls.

MetroCloud SCADA

MetroCloud is Metropolitan's cloud based SCADA monitoring service, allowing you to **control process and control equipment** directly from your smart device or computer. Enjoy fully integrated SCADA with the **latest security updates** and features to keep your municipalities data safe and **prevent unauthorized access**.

CALL TODAY!

(815) 886-9200

www.metropolitanind.com



Celebrating the Volunteers and Events That Keep CSWEA Thriving



By Lindsey Busch

Dear friends and colleagues,
First and foremost, I want to extend a sincere thank you to all our member volunteers who continue to make this Section as active and impactful as ever. We know everyone is balancing full schedule – both professionally and personally – and your willingness to give your time to support our mission does not go unnoticed. Whether you're serving on a committee, organizing events, mentoring, or simply showing up to participate, your involvement is what keeps our Section moving forward.



This past July, representatives from all three CSWEA Sections came together for the annual CSX meeting in the Wisconsin Dells. It was a productive and collaborative event where we advanced our strategic initiatives (Connection, Water Workforce, and Technical Excellence), shared ideas, and discussed ways to strengthen the organization across the region. It's always encouraging to see the commitment and teamwork that drives CSWEA at every level.

In August, our Young Professionals Committee hosted a Brewers outing in Milwaukee. It was a great opportunity for newer and long-time members alike to connect outside of work and build relationships within the industry. Thank you to the YP group for putting together

another successful event, and to Mulcahy Shaw Water for their support!

Looking ahead, many of us are preparing to attend WEFTEC 2025, the largest event of the year for professional development and networking. By the time of this publication, the conference will have already occurred, and I hope to have connected with many of you at the CSWEA WEFTEC event and throughout the conference.

Finally, we currently have a number of open spots on our committees, and we're always looking for new volunteers to get involved. If you're interested or have questions about where you might fit in, please reach out to our Membership Committee Chair, Autumn Fisher (afisher@donohue-associates.com). There's a place for everyone, whether you're new to CSWEA or looking to take on a larger role.

Thank you again to everyone contributing to the success of our Section. I look forward to seeing many of you this fall.

Warmest regards,

Lindsey Busch

Chair, Wisconsin Section of CSWEA 

Thank you!
TO OUR VOLUNTEERS

What happens **NEXT** is happening **NOW**.™

Let's shape your **NOW** together.

You're facing challenges with lasting implications. We're delivering world class solutions with lasting results. Tomorrow's reality is unfolding today, and our forward-thinking approach will keep you one step ahead.



cdmsmith.com/NEXTisNOW

**CDM
Smith**



Reliable Biogas Conditioning and Upgrading Systems

- Custom Engineered Solutions
- Designed for Maximum Uptime and Efficiently
- Factory Tested, Quick Installation
- Unmatched Service and Support
- Trusted by 100s of Municipal Facilities

Built in the Midwest. Backed by experience. Ready to perform.



Let's talk about your next biogas project.

Unison Solutions
5451 Chavenelle Road,
Dubuque, IA | 563.585.0967
sales@unisonsolutions.com
www.unisonsolutions.com

INTERACTIVE EDITION AVAILABLE ONLINE

With print and electronic communication operating hand-in-hand, you can take advantage of the fact that *Central States Water* is available online in a highly interactive format.

FREE
to print
advertisers



To experience *Central States Water* online, visit www.cswea.org



Gina Lewis

Lab Technologist,

Racine Wastewater Utility, Racine, WI

As Lab Technologist at the Racine Wastewater Utility, Gina Lewis plays a key role in ensuring the integrity of the Utility's sampling and compliance program. From BOD and TSS to phosphorus, ammonia, mercury, cyanide, TKN and E. coli, Gina works alongside a team of three lab technicians and a lab director to support the Utility's full range of testing, most of which is conducted in-house. As her desire to take on more responsibility has grown, she's recently begun transitioning into a quality control role, where she supports method development, data review, and standard operating procedures to ensure Racine's laboratory maintains its accreditation with the Wisconsin DNR.

Originally from Spring Grove, IL, Gina holds a degree in biology with a biochemistry minor from Augustana College. Like many in the wastewater field, her entry into the industry wasn't planned. She initially pursued pre-med and pharmaceutical tracks before realizing those paths weren't for her. A post-college job at a contract lab (PDC Labs, now Pace Analytical) introduced her to the world of environmental sampling and wastewater testing, and the work quickly resonated. She soon transitioned to a municipal role at Racine, where she's been ever since.

At Racine, every employee (including lab staff) is required to earn a wastewater operator's license within their first year. Gina found this requirement particularly valuable, as it gave her a broader understanding of how the Utility operates beyond the lab. That foundation has enhanced her understanding of how her lab work fits into the Utility's broader mission.

Racine's treatment facility is one of the larger municipally operated plants in the region, with an average flow of around 36 MGD and a maximum wet weather capacity, when utilizing both of its EQ basins, of over 300 MGD. The plant features headworks with bar screens and vortex grit removal, primary clarification, aeration tanks, final clarifiers, UV disinfection, gravity belt thickening, anaerobic digestion, and belt press dewatering. Recovered digester gas is recycled and reused to support the Utility's energy needs.

The plant leads multiple community initiatives, including a year-round

hazardous waste drop-off program, educational tours for local schools, and participation in "Bounce Back Racine," a city-wide open house that highlights public services and job opportunities. Gina credits her coworkers, especially the pretreatment staff, for their proactive efforts to involve and inform residents on issues like proper disposal of oils and household chemicals.

Gina's interest in public engagement spurred her to become involved with the CSWEA, serving on the Wisconsin Public Education Committee. With encouragement from her supervisor, Mary-Frances Klimek (herself a highly active CSWEA member), Gina took on the coordination of Wisconsin's annual middle school essay contest. Under her leadership, submissions increased from just two entries to over sixty, thanks in part to a creative shift in the prize structure: replacing a cash award with a school pizza party. The program has since expanded into a regional contest in partnership with Illinois and Minnesota, and is helping raise awareness among middle school students about careers in water and wastewater. Gina sees these outreach efforts as essential for the future of the industry. She believes that sparking early awareness, whether through essay contests or plant tours, can help students discover careers they might not otherwise consider.

For those entering the wastewater field, she emphasizes the importance of curiosity, persistence, and a willingness to learn. In her view, success doesn't depend on knowing everything upfront; it's about showing up, working hard, and taking initiative. The wastewater field offers a broad range of opportunities, and Gina encourages new professionals to explore different roles and ask questions to grow their knowledge and capabilities.

Outside of work, Gina enjoys all things outdoors. She lives near the Illinois-Wisconsin border, where she frequently hikes, kayaks, and spends time with her husband and energetic dog. Indoors, she enjoys rock climbing at local gyms. Gina loves visiting national parks and hopes to visit Acadia this fall! If you cross paths with Gina at a future event, be sure to introduce yourself, especially if you're interested in lab operations, educational outreach, or are in need of national park recommendations. **CS**



TAP INTO SOUND SCIENCE

Looking for a safer and easier way to know which sewer lines need cleaning?

SAVE TIME
 Get a reading in 3 minutes or less with no flow contact.

SAVE MONEY
 Screen 2+ miles per day at a fraction of CCTV costs.

SAVE WATER
 Clean the pipes that truly need it.

Easy to use.
Light to carry.
EPA evaluated.

See and Hear the Difference

InfoSense, Inc
 Request a Demo Today
 877-747-3245 · infosense.com
 sales@infosense.com

KRAFT ENERGY SYSTEMS
 Continuous Heat & Power

KB Series Biogas CHP Modules
 Pictured above: Model KB 375 Biogas CHP Module

Engineers & Owner/Operators first harness Kraft Power's personal energy to explore biogas to power applications. Discovering the ideal combination of CHP equipment and features takes a dedicated effort, product options, and years of experience. Since 1965, Kraft Power has provided these essential elements for success, and it certainly doesn't stop there.

Kraft Power is distinct in our energy and approach. Let's get to work on your CHP project today!

Contact Kraft Energy Systems today!
 877-349-4184
 CHP@kraftpower.com
 www.kraftenergysystems.com

KRAFTPOWER
 The power of performance
 All Models now available with
DYNAMIK DFB

Inside Drops for Manholes

Stop wasting resources on outside drops!

Find out why sewer districts throughout the USA are specifying RELINER® products

Photo by Central Industrial Contractors

RELINER® Drop Bowl
 Fits any Structure
 Does not touch inlet pipe

Flexible Pipe Coupler*

RELINER® Stainless Steel Pipe Support Bracket @ 4' Spacing (Min of 2 - Per Drop)

Down Pipe*
 Any Length Drop

RELINER® Stainless Steel Pipe Support

Bend at Outlet*
 Orient as desired
 *Supplied by others

Outlet sizes to service
 4" lateral drops through
 24" wet well drops

Now available in 304 & 316 Stainless

AIS Compliant

Stainless Pipe Supports
 Adjustable, non-corrosive
 11 gauge 304 or 316 SS
 Supports the pipe fully
 1.5"-30" dia. in stock
 Easy to install

Manhole Inside Drop
 Eliminate outside drops
 Reduce maintenance
 Simplify cleaning
 Stop Corrosion
 Install Quickly

RELINER®/Duran Inc.
 www.reliner.com 1-800-508-6001



Build America, Buy America A Partner You Can Count On.

You need equipment that works and works within the rules. Sulzer's XFP submersible sewage pumps deliver clog-resistant performance and long-term reliability, all while meeting full Build America, Buy America (BABA) compliance.

That means peace of mind for your operations and access to funding your project relies on, without compromising performance.

We don't just meet standards. We help you move forward with confidence.

Built here. Built to last. Built for you.

Learn more about Sulzer's BABA
go.sulzer.com/trusted-baba



Locally represented in Minnesota by:

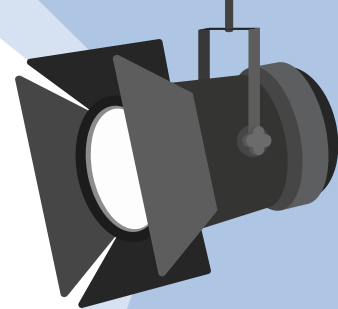


Phone: 877-645-8004
Website: www.minnesotapumpworks.com
Email: info@minnesotapumpworks.com

Locally represented in Wisconsin by:



Phone: 507-645-8004
Website: www.wisconsinpumpworks.com
Email: info@wisconsinpumpworks.com



YOUNG PROFESSIONAL SPOTLIGHT: **Rahim Ansari,** 2025–26 YP Representative

Rahim Ansari, 2025–27 YP Representative

Meet Rahim Ansari, the new Central States Water Environment Association (CSWEA) Young Professional (YP) Representative for 2025–26! Rahim is a Wastewater Engineer at MSA Professional Services, where he's been contributing his skills and passion for the industry since 2021.

Rahim earned both his Bachelor's degree in Civil and Environmental Engineering (2021) and his Master's in Environmental Engineering (2024) from the University of Wisconsin–Madison. At MSA, he assists in planning, design, and construction of wastewater treatment facilities, with experience in conventional activated sludge systems, enhanced biological phosphorus removal, chemical systems, biosolids processing, and lift stations.

"The water and wastewater industry is one of the most fascinating and essential fields there is. It's our duty to foster this passion in the next generation of environmental stewards."

Since joining CSWEA, Rahim has made an incredible mark. He became Co-Chair of the Wisconsin Section Student and YP Committee in 2021 (with Paige Peters) and took over as Chair in 2022. Over the years, he's helped revitalize YP and Student engagement post-pandemic by planning popular events, including:

- Sun Prairie WPCF Tour
- MMSD Nine Springs WWTF Site Visit
- Kenosha WWTF and Centrisys Facility Tour
- Design Thinking Webinar with Marquette's 707 Hub
- "I Want Your Job" Panel at MSOE
- Serving as YP Chair for CSWEA's 98th Annual Meeting

Although he recently stepped down from his role as WI Section YP and Student Committee Chair, Rahim continues to contribute to Section-wide YP Chair meetings, Flowing Forward webinars, and Wisconsin YP and Student meetings.

Rahim's passion for the water/wastewater sector is clear: "The water and wastewater industry is one of the most fascinating and essential fields there is. It's our duty to foster this passion in the next generation of environmental stewards."

With his energy, leadership, and dedication to the profession, Rahim is ready to champion young professionals across CSWEA in 2025–26. Join us in congratulating him on this exciting new role! [CS](#)



- SCADA Systems
- Custom Controls
- System Integration
- Prefabricated Structures
- PLC & HMI Programming

For over 20 years, Starnet has been providing custom solutions to the water & wastewater industry, with a focus on operator safety. Visit us and discover an innovative answer for your application.

Call Us: (262) 886-0228

StarnetTech.com • ArrowStations.com • ArcSafe.com



SULZER

Nordic Water

Performance you can count on. **A legacy you can trust.**

Trusted in thousands of sedimentation and filtration installations worldwide, we have the experience, expertise and products to meet your specifications and exceed your expectations for efficiency, reliability and service.

Our SuperCloth fiber disc filter is a well proven technology that provides high quality effluent with low Total Suspended Solids (TSS). The SuperCloth fiber disc filters are available in multiple sizes to fit your footprint and application needs.

Whether optimizing performance, or addressing stringent environmental standards, we've got your back. Decades of Experience. A legacy of Performance.

Learn more about Sulzer | Nordic Water
go.sulzer.com/trusted-nw





Northern Moraine WWRD

By Joe Lapastora, Director of Operations at Northern Moraine WWRD



Established in 1969 under the 1917 *Illinois Sanitary District Act*, this regional Sanitary District can be found in Island Lake, IL nestled between southwestern Lake and southeastern McHenry counties. Here the Northern Moraine Wastewater Reclamation District (NMWRD) provides wastewater collection and treatment services to the communities of Island Lake, Lakemoor, Port Barrington, and Holiday Hills along with septage receiving from regional service providers. With a facility planning area comprised of 16,700 acres, NMWRD covers a vast territory. In that territory, 3,700 widely spaced acres are currently within the District's corporate boundaries. The original infrastructure of the District was constructed in 1978 and was established as the Island Lake Sanitary District. The District operated as the Island Lake Sanitary District for 25 years until it was decided that a name that better reflected the regional services that the District provided would be a better fit and give difference

from any single community that it serves. And so, in 2003 the Island Lake Sanitary District became the Northern Moraine Wastewater Reclamation District.

The NMWRD collection system initially consisting of two lift stations positioned in Island Lake has seen that count increase over tenfold to 13 in Island Lake, 8 in Lakemoor, 2 in Port Barrington, and 1 in Holiday Hills for a total of 24 lift stations. The two lift stations in Port Barrington receive both conventional gravity flows in addition to those originating from a low-pressure sewer system found in portions of the Port Barrington community located along the waters of the Fox River. Here failing septic systems prone to inundation by floodwaters were replaced by individual grinder pumps installed at over 200 residences to feed into NMWRD's collection system. Each pump is owned and maintained by the District, presenting a significant operations and maintenance burden for staff and requiring a significant stock of spare pumps to be maintained. Most of the collection system is

about 45 years old or less, so it is comprised of relatively modern materials such as plastic truss pipe, PVC, and HDPE. The age and construction materials in the collection system aid in preventing significant infiltration and inflow, while a lack of significant industrial users limits operation and maintenance troubles to those of domestic grease and more recently flushable wipes. The District owns a custom televising vehicle which allows staff to televise the collection system following jetting efforts to adhere to our CMOM program without the need for outside contractors. The custom approach with a local upfitter allowed development of a vehicle catered to the District's specific needs such as small narrow streets along with significant cost savings compared to the purchase of prebuilt vehicle. The District is responsible for maintaining approximately 80 miles of sewers and over 1,500 manholes.

The NMWRD wastewater treatment facility is located in the southern portion of its service area in an unincorporated area

“In the years between the 1998 expansion and now, the District has seen a number of projects to replace aging equipment, improve safety, optimize facility operations, and meet new NPDES permit limits.”

North of the Village of Port Barrington and South of the Village of Island Lake. The current facility site uses 8 acres of a 31-acre parcel abutting protected wetlands to the North and West. There are some residences to the South separated by a quarter-mile buffer consisting of grasslands and farmland. This affords the District plenty of room for future growth along with the communities it serves. A solar array is currently under consideration to make use of the large parcel and to offset energy consumption.

Original construction in 1978 was a comminutor followed by raw pumping feeding to two 78-foot diameter Topco contact

stabilization plants with a combined capacity of 1.2 MGD. Downstream of these there was seasonal gaseous chlorination for disinfection. Effluent then exited the facility in a 4,500-foot, 30-inch outfall pipe that discharges into the Fox River through a submerged structure in the center of the riverbed. This effluent pipeline is still in use today. 14 drying beds were used to dewater aerobically digested sludge. In 1991 dechlorination equipment consisting of gaseous feed of sulfur dioxide had been installed as a result of IEPA requirements. A 31-in Rotamat fine screen replaced the comminutor in 1992.

At 20-years in age, the facility was nearing capacity in 1998, and was unable to meet new ammonia nitrogen limits set by IEPA. A plant expansion that overhauled nearly the entire facility would increase capacity, improve treatment for BOD, suspended solids, and meet ammonia nitrogen limits. This expansion was completed in 1999. Plant capacity was increased to 2.0 MGD DAF and 5.0 MGD DMF in this expansion. At the headworks an additional 40-inch Rotamat was installed to provide redundancy and the four raw pumps found replacements with higher capacity, two of which received VFDs to improve efficiency.



Headworks with new MS2 Bar Screen



New Control Building Electrical Room



Class B Sludge Pile



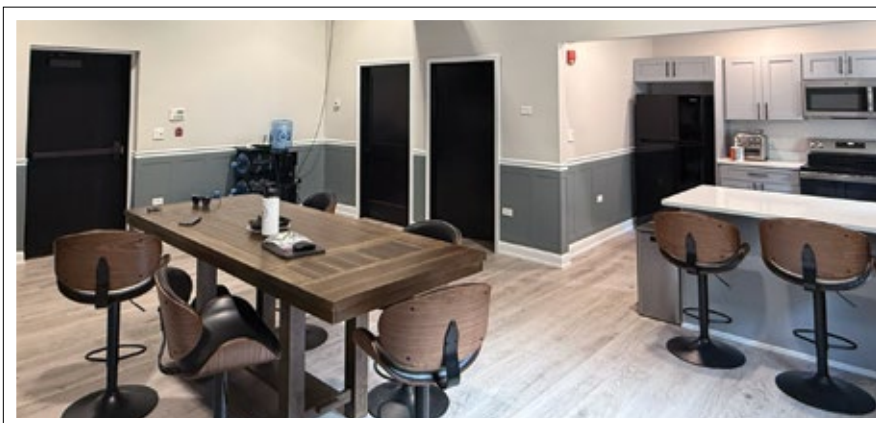
Brandon Scurto Clarifier Blanket Level

These fed into the new 1.2 MG oxidation ditch consisting of two rings with Orbal disc aerators. Downstream two 85-foot diameter clarifiers were constructed with a 4 MGD RAS pump station. Construction continued with a two-channel chlorine contact basin and adjoining chemical feed building that would house the chlorine and sulfur dioxide gas feeds in addition to non-potable water distribution. A portion of the two package plants were repurposed and used as aerobic digesters. Preexisting coarse and fine bubble diffusers

were left in place to supply air from three centrifugal blowers. A dewatering building was constructed and housed a 1.5 meter Komline-Sanderson belt filter press to supplement the drying beds. At the time Class B dewatered sludge was conveyed into a dump truck bay within the dewatering building and trucked out to a drying bed dedicated to stockpile use. Following this expansion discharge concentration of ammonia nitrogen went from 20 mg/L to an average of 0.075 mg/L. The design lends

itself to easy expansion to 3.0 MGD by addition of a third ring that can include BNR functions. However, with current average flows around 50% of the 2.0 MGD DAF and projections for population growth not meeting that need until the late 2030's that expansion is still a number of years in the future.

In the years between the 1998 expansion and now, the District has seen a number of projects to replace aging equipment, improve safety, optimize facility operations, and meet new NPDES permit limits.



New Operator Breakroom



Chris Molitor Root Removal from Mains

NEW THINKING. BETTER BUILT. THE ORBITGRINDER.

PROTECTS PUMPS AND SYSTEMS.
SOLIDS REDUCTION CONSTANTLY IMPROVED.

- + Consistent Macerating Results
- + Adjustable Maceration
- + Large Selection of Component Materials
- + Energy Efficient
- + Ease of Maintenance (MIP®)



LEARN MORE AT
www.boerger.com



BÖRGER
EXCELLENCE – MADE TO LAST

Municipal Representatives:



“The Northern Moraine Wastewater Reclamation District is poised to continually improve upon itself as it employs new technologies and explores new ideas to provide a sustainable service to the residents within its service area and to protect downstream users in the Fox River Valley.”

The District purchased a small horse farm adjoining the East boundary of the plant site and in 2011 converted the house to an administration building and boardroom. The administrative office was relocated from the control building at the plant site and features a drive-up window for the convenience of many customers who make payments in person. Later in 2018 a horse barn adjacent to the administrative office was upgraded with a concrete slab to better house equipment. It also served as an impromptu open air meeting space for a period during the COVID-19 pandemic, even hosting the CSWEA Operations Challenge team as competition arena in 2020.

In 2011 the gaseous chlorine and sulfur dioxide systems were replaced with liquid sodium hypochlorite and sodium bisulfite feeds to improve workplace safety. This was a project District staff designed and constructed themselves at the time. It consisted of three, 300-gallon bulk storage tanks for sodium hypochlorite and two 300-gallon bulk storage tanks for sodium bisulfite. Four 55-gallon drums were utilized as day tanks where peristaltic pumps drew the chemicals from. These required manual refilling daily. An overhaul of this system was completed in 2019 to make improvements that provided separate secondary containment spaces for the bulk storage tanks, new bulk storage tanks with outdoor fill ports, and ventilation lines off of the storage tanks to the rooftop to eliminate corrosive fumes. District staff custom-built chemical feed skids that draw directly from the bulk storage tanks with new Blue-White M2 peristaltic pumps. This improved efficiency by eliminating the day tanks and the need to refill them daily. Later in 2021 a new non-potable pump skid with VFD-controlled pump motors was installed to replace the aging system from 1999.

Several solids handling improvements have been made over the years. In 2012 improvements were made to the aerobic digesters, dewatering process, and for on-site sludge storage. The full capacity of the old package plants was retrofitted into aerobic digesters by removing the remaining equipment. Sanitaire medium bubble diffusers were installed

across the floor of each of the two digesters and aluminum covers were installed over each. This provides nearly 1 million gallons of capacity between the two digesters and allows for significant solids reductions. Around the same time, a Centrisys centrifuge was installed to handle dewatering operations with the belt filter press transitioning to a backup unit. In 2013 a high efficiency centrifugal blower with a 200 HP VFD-controlled motor was installed to provide 100% of the aeration requirements of the aerobic digesters while consuming 33% less power than the three preexisting blowers which were utilized as backups. Seven of the existing drying beds were converted into three covered storage bays for stockpiled sludge with approximately fifteen months of storage capacity readily available. In 2019, the belt filter press was removed and work began to reconfigure the sludge conveyance system to eliminate the need to manually relocate dewatered sludge from the dewatering building to the sludge storage bays. An opening was made in an exterior wall of the dewatering building and the existing shaft-less screw conveyor that had originally moved dewatered sludge into a central bay of the building was repositioned to convey out through the opening. The existing conveyor was not long enough to reach an existing drying bed located about 30-feet away. At the time an additional shaft-less screw conveyor would have cost approximately \$2,000 per linear foot. With equipment costs and installation estimated at nearly a quarter million dollars District staff began experimenting with different types of conveyors to see if there was a more economical option. Initial trials of an agricultural belt conveyor were unsuccessful due to sludge falling under the belt and causing slippage on the drive pulley. Success was found with a grain auger that was rented from a local farm supply yard and piloted for a period and the District opted to purchase a 61-foot grain auger for a permanent installation. The auger was installed and fitted with a VFD-driven electric motor to allow speed control, heat trace with insulation to protect against freezing, safety pull cables, and an auger motion sensor to signal back to the centrifuge PLC. These augers have proven to

last for 3+ years and due to the cost on these units, the District will continue to utilize this setup for the foreseeable future. While unconventional, it has proven to be an economic alternative to a shaft-less screw conveyor.

Additional improvements at the headworks have also occurred. In 2013 the 31-inch Rotamat fine screen was replaced with a 36-inch Lakeside Raptor Drum Screen that became the District's primary screen. With the District's headworks and adjacent Control Building located within the 100-year flood plain flood-proofing improvements were made in 2018. This included raising the walls of the raw wet well, modifying the Control Building exterior entryways to accept installation of stoplogs to prevent entry of flood waters along with replacement of one of the raw pumps located in a basement dry well with a fully immersible pump, with plans to replace the remaining three with similar immersible pumps to provide continued operation should flooding occur. In 2019 a Channel Monster channel grinder was installed upstream of the Raptor drum screen to reduce rag accumulation on the lower bearing of the screener and to protect against debris as the District began accepting septage from local haulers. In 2023, the 40 inch Rotamat was replaced with a Headworks MS2 Bar Screen. After the startup of the MS2 bar screen, the District was back to full redundancy for our headworks screening and this now allows Operations staff to choose which screen is best for the flow coming into the facility.

Improvements at the oxidation ditch began in 2015 with the installation of dissolved oxygen probes and VFDs for the aerator motors to provide DO-controlled pacing of the motors and improve energy efficiency. Later in 2019 with a Phosphorous limit coming into effect for the first time, a chemical feed system was installed to provide CPR. After experimenting with various chemicals and feed points the second ring of the oxidation ditch was selected as a feed point for an aluminum chloride solution provided by Chemtrade known as Hyper+Ion 1997. Two, 1,000 gallon bulk storage tanks were installed in the recessed pit where the old belt filter press used to be located. This provided an adequate secondary spill containment space. Exterior fill ports and venting were installed as well. Chemical

feed is accomplished with a pump skid equipped with two Blue-White M2 peristaltic pumps. In 2023, the District began to optimize biological phosphorous removal without any major plant upgrades by simply decoupling aerator shafts between the inner ring and outer ring at one of the four quadrants within the ditch. The instantaneous results yielded a promising hope that bio-p removal is truly achievable at our facility and, when fully optimized, our facility was able to remove phosphorous with little to no chemical addition. Of note, NMWRD is now saving upwards of \$40,000 on chemical costs based on these changes when compared to previous years.

In 2020 one of the two clarifiers saw replacement of the concrete floor and center drive mechanism following heaving due to hydraulic forces pushing the floor up during routine maintenance. This required removal of the clarifier cover, and removal of most of the existing floor, along with the access bridge and all of the clarifier mechanism. Accompanying the replacement of the floor, 24 pressure relief valves were installed on the new clarifier floor to supplement the existing relief valves in the walls. A new Walker Process stainless steel clarifier mechanism was installed along with a new access bridge.

Other notable improvements, both completed and ongoing, include the deployment of SCADA at the plant and for our collections system. In early 2023, the District started to install the necessary backbone infrastructure that would be the early beginnings of SCADA. New SCADA equipment that has been installed recently includes four new SCADA control panels, fiber loop, and a SCADA command center at the plant. As of today, 9 of our 24 lift stations are fully on SCADA while the remaining 15 are still utilizing auto dialer alarming. Also of note, more than half of the plant is fully tied into SCADA. We expect to have both the plant and the entire collection system on our SCADA by the end of 2026. The District just recently wrapped up its major control building electrical project that moved all critical electrical equipment and control panels into a climate controlled room. The wrap up of this project will allow us to proceed on some upcoming projects which include the installation of three new Kaeser turbo blowers that will replace the three Lamson centrifugal blowers while also replacing the 30 year+ old 500kw Onan generator with a 600kw Kohler generator, with a belly tank included. Other noteworthy projects completed in the past few years include a full rehab of the Operator breakroom and implementation of a septage receiving station.

The District's staff currently consists of five full-time Operators, Chris Molitor, Emily Lecuyer,

Brandon Scurto, Dan Alcock, and Brian Mulee. This talented and dedicated staff are led by Director of Operations, Joe Lapastora. The Operators are cross trained to operate and maintain all aspects of the collection system and wastewater treatment facility with the ability to assist with laboratory work as needed. District Clerk, Elisa Fisher, Assistant District Clerk, Madalina Roscan, and part-time Clerk, Jennifer Duron, handle the administrative work that includes monthly billing of over 5,000 District customers. District Junior Engineer, Jasmin Bait, and

District Manager, Mohammed Haque, work to plot a course into the future for the District as they seek and manage grant funding, oversee construction projects, mentor engineering interns, and navigate the legal and administrative aspects of running a sanitary district. The Northern Moraine Wastewater Reclamation District is poised to continually improve upon itself as it employs new technologies and explores new ideas to provide a sustainable service to the residents within its service area and to protect downstream users in the Fox River Valley. [CS](#)

PLANNING, DESIGNING, & DELIVERING SUSTAINABLE SOLUTIONS

THE TRUSTED PARTNER –
Helping clients make
informed decisions



TROTTER
ASSOCIATES, INC.
CONSULTING ENGINEERS



trotter-inc.com

You don't hire engineers who are "good enough."
You hire the very best.

Incidentally, so do we.



There is no B-Team.

ApexEngGroup.com



INTEGRATED PROCESS SOLUTIONS

We are a full-service professional integration firm, specializing in industrial automation and controls for water, wastewater, and environmental treatment systems.

ips@ipsamerica.biz

CORPORATE HQ

34696 412th St SE
Fosston, MN
56542
218.435.1703

ALBANY, MN

411 Railroad Ave
Albany, MN
56307
320.345.1457

GRAND FORKS, ND

1600 47th Ave S #B
Grand Forks, ND
58201
218.791.2996

WAUNAKEE, WI

315 Raemisch Rd #D
Waunakee, WI
53597
608.849.4375

ipsamerica.biz

Safeguarding Water

How effective leadership and communication can tackle emerging contaminants

Lindsay Kirsch, Darcy Male, Gus O'Leary, Tiffany Poole, Shahrzad Saffari, Luke Thompson, and Linda Vo



Streamline is a 12-part series presented by 2024 graduates of the Water Environment Federation (WEF; Alexandria, Virginia) Water Leadership Institute (WLI). Each article highlights a different challenge in the water sector. For more information on WLI, visit www.wef.org/wli.

Water is fundamental to life, yet its quality is increasingly threatened by emerging contaminants that pose risks to health, the environment, and economies. Microplastics, per- and poly-fluoroalkyl substances (PFAS), and 6-p-phenylenediamines quinone (6PPD-q) are among the substances generating concern for the water sector. To uphold public trust, it is essential that municipalities and organizations demonstrate effective leadership and clear communications as they research, restrict, and remediate these contaminants.

Researching Microplastics

Microplastics – extremely small pieces of synthetic polymers that are released when plastic breaks down – present a unique challenge due to a lack of understanding about their sources, behavior, and long-term impact on human health and the environment. Two recent initiatives showcase the power of leadership and communications in advancing this critical work.

In 2015, the Florida Microplastic Awareness Project, funded by a grant from the U.S. National Oceanic and Atmospheric Administration (NOAA), mobilized volunteers to collect and categorize microplastics while hosting outreach events to inform smaller communities of microplastics pollution. More recently, NOAA has announced collaborations with the University of New York (New York City) and the University of Hawai'i (Honolulu) to further study microplastics and promote environmental stewardship.

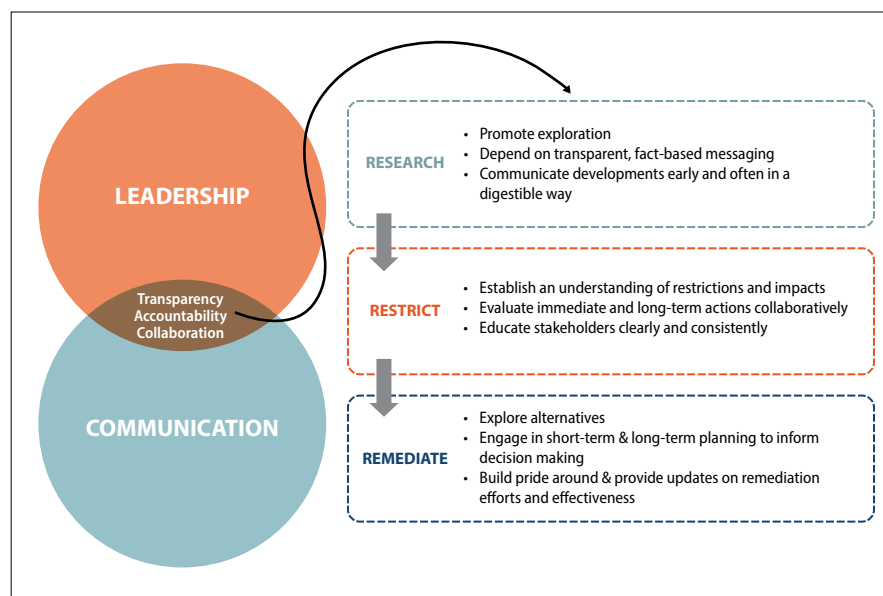
In another project, researchers at the University of West Florida (Pensacola) collaborated with a local middle school in 2021 to collect and organize microplastics from Pensacola Bay water samples. Students learned more about not only microplastics pollution, but also the importance of community awareness.

Both projects highlight the impact of academic leaders taking accountability and fostering trust between research institutions and the community. Leadership and communication empowered citizens and reduced ecosystem pollution in parallel with rigorous research efforts.

Restricting PFAS

Regulatory bodies have recently focused on PFAS restrictions because of their links to adverse health effects and pervasive presence in the environment – an undertaking that requires proactive leadership and effective communication.

The U.S. Environmental Protection Agency (EPA) led the charge in addressing PFAS, issuing interim Drinking Water Health Advisories in 2009. These advisories provided public water systems with updated information about ongoing health assessments while the agency established maximum contaminant levels (MCLs). In 2024, EPA announced a



national drinking water regulation for six PFAS compounds and finalized MCLs.

Advocacy groups also played a crucial role. Grassroots campaigns successfully petitioned the U.S. Food and Drug Administration (FDA) to ban long-chain PFAS in food packaging in 2016. Continued pressure from petitions, scientific data, and state bans led FDA to announce a phaseout of short-chain variants of PFAS in 2020. In 2024, FDA announced the complete removal of PFAS from food packaging, marking a critical step toward reducing environmental and health hazards associated with these contaminants.

These efforts illustrate how transparent communications and grassroots advocacy can drive regulatory change. Persistent, collective action can be a powerful force against emerging contaminants.

Remediating 6PPD-q

In 2020, scientists identified 6PPD-q – a byproduct of a rubber tire stabilizer often found in urban runoff – as a key factor in the mortality of endangered coho salmon in the Pacific Northwest. Remediation required

collaboration among native tribes, nonprofit organizations, universities, and regulators to develop best management practices for treatment as well as the use of alternative materials in new products.

The Puget Sound National Estuary Program's Stormwater Strategic Initiative spearheaded efforts by funding best management practices for 6PPD-q hotspots. The Nisqually Indian Tribe partnered with environmental organizations to pilot a biofiltration system to capture and filter stormwater runoff. Within 11 months, the system significantly reduced 6PPD-q levels in treated water samples. As an alternative to treatment-based remediation, regulators, state governments, and other organizations promoted the use of safer product material alternatives to curb contamination at its source.

Although still in the early stages of the life cycle, this initiative demonstrates that strong collaborative leadership and effective communication among local tribes, states, and the federal government not only helped address immediate contamination concerns but also fostered environmental stewardship in the community.

About the Authors

- Lindsay Kirsch – Environmental Project Manager, Sewerage and Water Board of New Orleans
- Darcy Male – Project Manager, WSSC Water (Laurel, Maryland)
- Gus O'Leary – Principal Engineer, Kleinfelder (San Diego)
- Tiffany Poole – Supervising Environmental Chemist and Laboratory Manager, Metropolitan Water Reclamation District of Greater Chicago
- Shahrzad Saffari – Water Treatment Specialist, Yokogawa Corp. of America (Sugar Land, Texas)
- Luke Thompson – Water Engineer, HDR Inc. (Omaha, Nebraska)
- Linda Vo – Senior Policy and Program Manager, California Water Efficiency Partnership (Sacramento, California) [CS](#)

Excellence in EngineeringSM



Channahon | Illinois



Mt Horeb | Wisconsin



Joliet | Illinois



STRAND
ASSOCIATES®

www.strand.com
12 Locations Nationwide

Multidisciplinary firm serving public and private sectors

DIXON ENGINEERING, INC.

Engineering and Inspection Services
SINCE 1981



INSPECTION SERVICES

New Tank Construction Inspections
Dry and ROV Inspections
Annual Security Inspections
Coating Inspections
Warranty Inspections
Welding/Repair Inspections

ENGINEERING SERVICES

Long Term Maintenance Contracts
Antenna Design, Review, & Inspection
Tank Coating/Structural Repair Specifications
Coating System Failure Analysis
Treatment Plant Coating Specifications

Visit our website at www.dixonengineering.net
for more information about these and our other services.

(800) 327-1578

STRUCTURE. & INTEGRITY.

PITTSBURGH TANK & TOWER GROUP

An ESOP Company

Since 1919

"100 years and still climbing"



WWW.PTTG.COM

INSPECTIONS REPAIR TANKS

NEW TANKS

(270) 826-9000 ext. 2605

EXISTING TANKS

(270) 826-9000 ext. 4601

MERRELL BROS.

A Biosolids Management Corporation



**Mobile
Belt Press
Rental**



**merrellbros.com
(800) 663-8830**



**EFFICIENCY
SAVES MONEY.**

**CONVENIENCE
SAVES TIME.**

WE OFFER BOTH.

It's the synergy that comes from supplying both pump equipment and electrical controls to operate those pumps. It's the one stop shop for selection and sizing as well as after-market service to the end user.

We sell solutions that provide the highest operational efficiency. We have premium-efficient pumps and motors along with advanced control strategies to reduce energy costs.

We understand your needs and the dynamics of your situation. We'll develop customized solutions and enhanced services that you can't find anywhere else. With one call, find out why L.W. Allen pumps and Altronex control systems have become the leading provider of pumps, controls, technical assistance and superior customer service.

**Reduce your energy costs and save time.
Call (800) 362-7266.**

1802 Brackett Ave • Eau Claire, WI 54701
4633 Tompkins Drive • Madison, WI 53716
(608) 222-8622 • FAX (608) 222-9414 • www.lwallen.com





GLOBAL WATER
STEWARDSHIP

SERVICE TRIP *Report*

Global Water Stewardship Volunteers Bring Lasting Impact to Costa Rica

By Alexandra Ramirez

Every August, Global Water Stewardship (GWS) brings together volunteers for our annual service trip to Costa Rica, a tradition that combines adventure, learning, and meaningful service. This year, a smaller group of ten volunteers came together from across the United States, each bringing unique experiences in the wastewater industry. Among them was one of our board members and a student from the winning team of this year's student competition, representing the University of Wisconsin-Platteville.

After gathering in San José, we set out on the four-hour drive to Bijagua, where Celeste Mountain Lodge, tucked into the rainforest with breathtaking mountain views, would be our home for next few days.

Our first day was all about settling in and soaking up the surroundings. By Sunday, the group was ready to dive into Costa Rica's natural wonders. We spent the day at Tenorio Volcano National Park, hiking to the famed Celeste Waterfall and marveling at the vibrant wildlife along the way, snakes, lizards, coatis, and more. For many, it was their first trip outside the U.S., and the lush rainforest left everyone in awe. The day ended with a tubing adventure down a local river, helmets and life jackets required, a thrilling way to break the ice and share a few laughs.

Monday brought one of the important activities of the trip: meeting with the Asada in San Rafael de Guatuso, which provides water services to about 8,000 people. This meeting gave us the chance to learn more about the community and the work the ASADA does, helping gather information to develop the next edition of the 2026 Student Design Competition. Alongside local leaders, representatives from AyA, and the town's mayor, we toured potential project locations and visited nearby schools to explore opportunities for new biogardens. Seeing the school directors' enthusiasm reminded us why these projects matter. On the way back, we stopped in La Fortuna, where Doña Nidia Vásquez, executive director of the Asada, gave us a tour of their water treatment plant. We capped the day with a soak in volcanic hot springs and a night walk through the forest, highlighted by a rare glimpse of a tapir.

“For many, it was their first trip outside the U.S., and the lush rainforest left everyone in awe.”





“Volunteers left with new skills, stronger connections, and a deeper understanding of water stewardship challenges.”

The rest of the week was a blend of hands-on projects, student collaboration, and community celebration. Some volunteers traveled to Montezuma to check on the first GWS biogarden, which had fallen into disrepair. Working with the local school and nursery, the team restored the garden, buying materials, planting new greenery, and ensuring it would function properly again. Meanwhile, other volunteers prepared for project presentations with students from Tecnológico de Costa Rica and the University of Wisconsin-Platteville.

Both winning teams shared their designs with local authorities, Nicoya Riverkeepers, and the Asada of Cobano. This year's student competition challenged the teams to develop a conceptual design for a centralized wastewater collection and treatment system in the community of Santa Teresa, in the Puntarenas province of Costa Rica. The town currently lacks a centralized wastewater system, and most households rely on septic tanks and poorly managed greywater disposal, which frequently leads to environmental contamination and public health risks.

Watching the students in action was truly inspiring. They carefully considered factors such as local topography and tourism to design treatment alternatives and collection systems. Each team approached the challenge differently, yet both projects were creative and deeply respectful of the community's rich biodiversity and socioeconomic context, showing that diverse ideas can lead to the same goal of improving community sanitation. The best part was seeing the discussions that were sparked from each presentation, highlighting the power of

collaboration between students, volunteers, and community leaders.

Thursday was the heart of the trip: AguaFest. Originally planned outdoors, morning rain sent us inside, but it didn't slow down the day. GWS volunteers, the TEC students, and the Nicoya Waterkeepers ran nine interactive stations for children aged 5 to 13, from water testing and toilet toss games to the ever-popular dunk tank. Throughout the day, students and volunteers worked together to create a mural, which was donated to the school at the end of the event, a lasting symbol of the importance of water stewardship.

On Friday, the group split up: some finished the biogarden in Montezuma while others joined Nicoya Riverkeepers for a beach cleanup. The week wrapped up with a clear sense of accomplishment and the satisfaction of contributing to meaningful projects in the community. Saturday brought departures, with some volunteers heading home and others continuing to explore Costa Rica.

This annual service trip is an important opportunity to strengthen partnerships, continue previous projects, and identify new ways to support communities. Volunteers gain hands-on experience, develop professional and personal connections, and leave with a deeper understanding of the challenges and opportunities in water stewardship.

If this story inspires you, we would love for you to get involved. To learn more about our projects or join a future service trip, reach out to Sarah Guzman and Joe Lapastora at chair@globalwaterstewardship.org. 

PFAS **RAPID RESPONSE**

PFAS REMOVAL SOLUTIONS FOR MUNICIPALITIES OF ALL SIZES



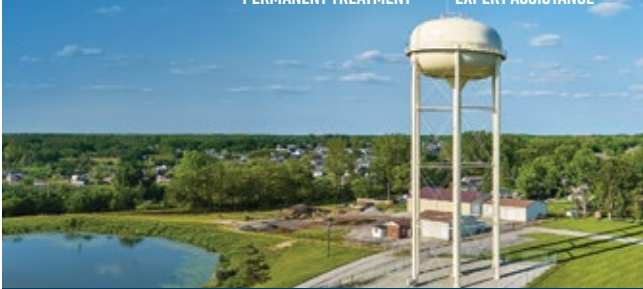
RAPID RESPONSE



TEMPORARY & PERMANENT TREATMENT



END-TO-END EXPERT ASSISTANCE



BY **WATER SURPLUS[®]** [.com/PFAS](https://www.watersurplus.com/PFAS)

Process. Control. Service.





WWW.ENERGENECS.COM
800-343-6337



Cost Effective Algae Control

Durable Stainless Steel Construction



- ▶ Full access when open between baffle and weir
- ▶ Exclusive hinge system locks covers open with no tethers, cables or struts
- ▶ Light weight, safe, reliable and effective
- ▶ Lower your labor costs with a cleaner solution

Continuously inhibit algae growth and reduce post clarifier treatment issues



Contact us to get your quote started today
 23062 Hwy. 34 • Barnesville, MN 56514
 Phone 218-493-4470 • Fax 218-493-4441
janssenmachine@rrt.net • janssenmachine.com





BOLTON & MENK
 Real People. Real Solutions.
www.Bolton-Menk.com

Wastewater Treatment Facility Improvements
 City of Perry, Iowa







GLOBAL WATER
STEWARDSHIP

GWS 2025-2026

Problem Statement

San Rafael de Guatuso, Costa Rica



Frio River, San Rafael de Guatuso

Project Understanding

- **Location:** San Rafael de Guatuso, Costa Rica.
- **Population Estimate:** 3,369 (Year 2020) [Source - ASADA, 2023]
- **Growth Rate:** Approximately 4% [Source - ASADA, 2023]
- **Number of Water Services:** [Source - ASADA, 2023]
 - Residential – 832 services
 - Hotels – 14 services
 - Restaurants – 27 services
 - Other Commercial Properties – 39 services
- **Water Usage:** [Source - ASADA, 2023]
 - Residential – 40 m³ monthly average per household.
 - 4 inhabitants per household.
- Estimated Average Monthly Consumption per Commercial Property – 50 m³
- **Annual Average Precipitation:** 2,699 mm [Source – Climate-Data.org]
- **Average Temperature:** 20.7 Degrees Celsius [Source - Climate-Data.org]
- Wastewater production can be estimated assuming 80% of water consumed per person will be sent to the sanitary system.
- Infiltration flow for PVC pipe material is 0.25 Liters/sec/km
- Typical **Influent** Characteristics: [Source - AYA, 2025]
 - BOD5 = 280 mg/L
 - COD = 550 mg/L
 - TSS = 220 mg/L total nitrogen
 - Total Nitrogen = 50 mg/L
 - Total Phosphorus = 20 mg/L
- Required **Effluent** Characteristics; (defined in “Reglamento de Vertido y Reuso de Aguas Residuales (RVRAR)”)
 - BOD5 = 50 mg/L
 - COD = 150 mg/L
 - TSS = 50 mg/L
 - Total Nitrogen = 40 mg/L
 - Total Phosphorus = 10 mg/L
 - Fecal Coliform = 1000 MPN/100mL (If water is to be reused, effluent fecal coliform must be less than 105 MPN/100mL)

Costa Rica has very few centralized wastewater treatment systems. In rural areas, septic tanks are a common way of treating wastewater; greywater is often discharged directly overland. The leach fields are very

small and shallow and although the law states leach fields must stay within each individual property, they often do not. Shallow bedrock, poor soils, poor cleaning and maintenance practices, and poor designs often contribute to improper treatment of septic tank effluent. Further exasperating the issue, it is not uncommon for sludge cisterns to dump collected material in rural areas and pollute the surrounding environment instead of trucking the sludge to a distant WWTF.

The community of choice for this year's problem statement is the City of San Rafael de Guatuso, Costa Rica. The community is located in the Northern Territory of Costa Rica, at the bottom of the eastern slopes of the Tenorio volcano and is about 100 miles northwest of the capital city, San Jose. The community extents include the urban area of San Rafael.

The community is an agricultural town located on the Rio Frio. They are located near

a few of Costa Rica's great attractions, which include the Arenal Volcano national Park, la Fortuna de San Carlos, and the Venado Caves. Cattle ranching is the predominant source of income for the community, as they do not see a high number of travelers each year. Population data can be found on <http://citypopulation.de>. Use your best engineering judgment regarding projections.

There is no sanitary sewer system, wastewater treatment system, or storm sewer system, which constitutes an environmental and health hazard to the residents due to the collapse of the anaerobic treatment systems and septic tanks that exist on most properties. The interaction of factors such as topographical conditions, runoff dynamics, precipitation frequency and intensity, flood history, and groundwater depth, among others, leads to the collapse and flooding of septic tanks, which results in the disruption of treatment processes and the discharge and infiltration of raw sewage, with environmental impacts due to water resource contamination.

The local community has been proactive in seeking a centralized wastewater treatment solution and would like a preliminary conceptual design of a treatment system along with a collection system. The design team must propose three (3) locations for the treatment site. Additionally, the design team must propose three (3) alternative treatment systems (each system may be one type of treatment or a series of treatment processes). The design must include one (1) collection system design and also specify outfall/discharge location of the treatment plant's effluent. The community values the great variety of flora and fauna in the area and the design team should hold this community interest in high regard while considering treatment alternatives. The ultimate design should not impede or negatively affect any of the community interests.

Given the complexity and status of the project, the design team must work on an optimal site selection and a preliminary design proposal. The design should be as intensive as possible.

For example, calculate pump power requirements, select pumps to meet the design parameters, size pipes based on anticipated flows, accurate elevations, and stationing through the provided survey information, etc.

“There is no sanitary sewer system, wastewater treatment system, or storm sewer system, which constitutes an environmental and health hazard to the residents due to the collapse of the anaerobic treatment systems and septic tanks that exist on most properties.”



Figure 1. General community extents of San Rafael de Guatuso.

“The local community has been proactive in seeking a centralized wastewater treatment solution and would like a preliminary conceptual design of a treatment system along with a collection system.”

In Costa Rica, especially in rural areas, toilet paper is not disposed of in the toilet. This is due to low water pressure, smaller pipe sizes and general goal to reduce solids entering septic tanks or treatment systems. Used toilet paper is typically collected in trash cans and is disposed of along with other solid waste. Design of wastewater collection and treatment improvements should follow Costa Rican design standards as much as possible, however most teams will use typical U.S. standards for the basis of their design (for example, NR110, Recommended Standards for Wastewater Facilities, etc.). The collection system should be designed so that the piping size will allow for toilet paper to be flushed.

It is Costa Rican law that the property owner is responsible for their individual connection to the sewer main, however, it is necessary to plan for funding the entire connection. It is also Costa Rican law that if you have water service once a sewer main is constructed in front of a property, the property owner must pay for the service whether they chose to connect to the system or not.

Project Approach

For this project, GWS is soliciting designs for a long-term solution to the sanitation problem in this region. In general, the solution approach should be to design a centralized treatment system with a complete collection system.

Additional information can be found using the following Google Drive link: (https://drive.google.com/drive/folders/11B4grVXrh-VWS_194CrwoUViQzki62Mtw)

Additional Project Considerations

The specific areas of concern with the collection and wastewater treatment system are described as follows:

1. The treatment facility must be adequately sized for anticipated flow, future growth, and with seasonal rainfall variability considered.
2. Seasonal variability of flows due to tourism should also be considered.



Figure 2. Proposed treatment site location #1.

3. Treatment facilities should be designed to be able to treat to the desired effluent limits as described in this document.
4. Due to the socioeconomic status of the community, user fees must be lower than 10,000 Colones (Costa Rican currency) per month. Assume the capital cost is covered by some outside source and the user fee will include O&M costs.
5. The location of the treatment facility must

be easily attainable and needs to be in an area that is not at risk of flooding and landslides. Additionally, be aware of and protect existing drinking water sources. Treatment site locations also need to be evaluated for ease of construction and potential impacts on nearby homes and businesses. The average and maximum flows for the proposed collection system need to be determined.





Figure 3. Proposed treatment site location #2.

“The location of the treatment facility must be easily attainable and needs to be in an area that is not at risk of flooding and landslides. Additionally, be aware of and protect existing drinking water sources.”

Design Objectives & Constraints

The following are the items that should be discussed or implemented as part of the design project. The design that best accomplishes these goals will have the highest likelihood of long-term success.

1. The project must take into consideration the local climate (temperature, high water table, heavy rainfall) and high variability due to tourism.
2. Avoid offensive odors and minimize impacts on landscape aesthetics.
3. All equipment must have a level of redundancy to maintain treatment if equipment fails or is under repair.
4. The solution must utilize a minimum of space and energy.
5. The project capital cost must be minimized.
6. The system must be easy to operate and maintain. There is no wastewater training available in the area or wastewater operators' associations. Local staff will have to be trained on the system operation and maintenance, but may be available only on a part-time basis, so the system should be mostly self-operational.
7. The wastewater treatment equipment must be easily replaceable with parts readily available.
8. Treatment equipment must be compatible with the existing electrical system. 120V and 240V are readily available but 480V may not be.



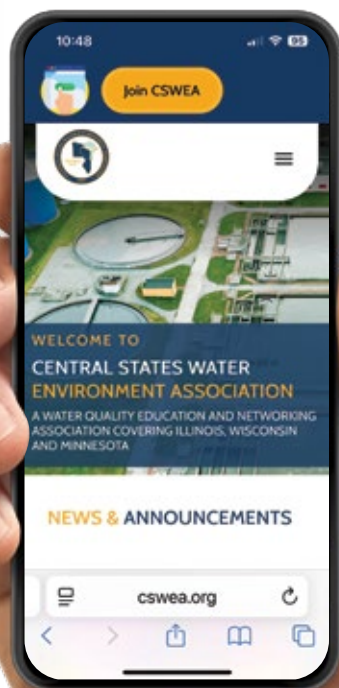
Rio Frio, Costa Rica

9. Consider simplicity (less O&M the better) in design whenever possible.
10. It is recommended that the teams design for the year 2046 (20 years). Provide justification with any variances. Consideration should be given to future plant process expansions beyond 2046 in the design and site selection.
11. Use best engineering judgment in consideration of separation requirements for potable water and sewer main. Potable water typically runs along the road Right-of-Way.
12. Designate the following in the report/presentation.

- a. Three (3) proposed treatment plant sites.
- b. Designate one (1) of those three (3) proposed sites as the recommended site location. Three (3) alternate treatment processes.
- c. Designate one (1) of those three (3) proposed treatment processes as the recommended treatment process.
- d. Identify and describe the collection system

- design, including the outfall location.
- e. Clearly state the capital cost estimate for full construction of the WWTF and accompanying collection system.
- f. Clearly state the monthly user fees that the community should charge residents that will be a funding source for general O&M of the WWTF and collection system. **CS**

Find us online
www.cswea.org



WORRIED ABOUT PFAS IN YOUR SEWER AND STORMWATER SYSTEMS?



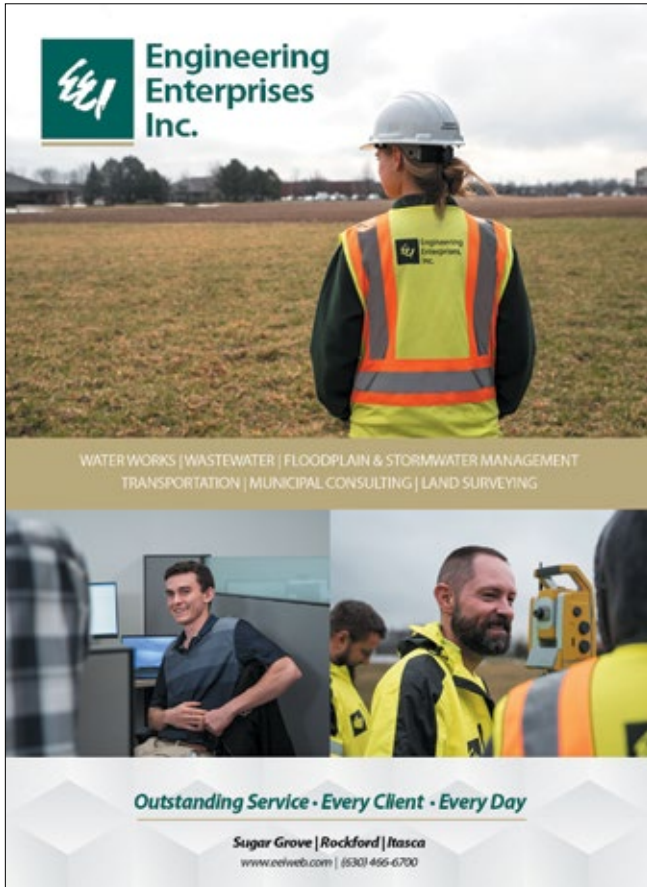
MAKE THE SAFE AND ECO-FRIENDLY CHOICE BY USING PRO-RINGS!

The EPA states no safe PFAS level exists in drinking water, leading states like Minnesota to ban PFAS products. **PRO-RINGS**, made from EPP, are PFAS-free and don't use potentially contaminated recycled materials. This ensures Pro-Rings won't need future replacement like asbestos cement pipes, lead pipes, and other toxic PFAS products.



PRO-RING™

cretexseals.com • Waukesha, WI 53188 • 262-542-8153



Engineering Enterprises Inc.

WATER WORKS | WASTEWATER | FLOODPLAIN & STORMWATER MANAGEMENT
TRANSPORTATION | MUNICIPAL CONSULTING | LAND SURVEYING

Outstanding Service • Every Client • Every Day

Sugar Grove | Rockford | Itasca
www.eeiweb.com | (630) 466-6700



BAXTER & WOODMAN
Consulting Engineers

WASTEWATER

WATER

STORMWATER

Providing innovative engineering, construction, and maintenance services to meet the evolving needs of the water industry.

YOUR PARTNER IN WATER STEWARDSHIP
baxterwoodman.com




JDV LEVEL LODOR™

Safe Even Distribution

Represented by:

MNX inc.
mnxinc.net

Plus Odor control

www.jdvequipment.com

JDV
Equipment Corporation

Megatrends are Demanding a Change in How We Plan, Design, and Construct Water Infrastructure: **ARE WE READY?**

Executive Summary

Meeting the next century's water challenges will require more ambition, more innovation, and a renewed commitment to reshaping the way we support the health and economic prosperity of our communities. Climate change, ecological degradation, regulatory pressures, and urbanization are exposing the limits of the recent decades of reactive maintenance, incremental capital improvement plans, and conventional facility designs. Expanding or replacing infrastructure alone cannot resolve systemic vulnerabilities, nor does it adapt quickly enough to emerging risks. Serving communities' water needs will depend on our ability to integrate sophisticated management, stronger policy frameworks, faster and more flexible technology, and a deeper commitment to resource recovery.

This paper outlines a path organized around four focus areas: management, policy, technology, and resource recovery. It presents practical principles and real-world examples that demonstrate how reshaping the strategy can deliver more resilient systems. The insights presented here aim to spark a rethinking of how we define success in water infrastructure and inspire actions that secure sustainable water futures for communities. Given what we see as megatrends in the water and wastewater service industries, we advocate for planning, designing, and constructing infrastructure that is more flexible, modular, and more quickly deployable than the historic behemoths that were designed to last 50 years or longer, because rarely are they designed to adapt to rapidly changing conditions, regulations, and technology. Doing so makes us better stewards of the public's money and is more responsive to the realities of today and anticipated in the future.

Introduction

Access to clean, reliable water underpins every aspect of modern life, from public health and safety to economic growth and community development. However, today's water systems are facing unprecedented challenges that expose the limits of traditional management approaches.

New contaminants such as PFAS, microplastics, and pharmaceutical residues are increasing treatment complexity, as highlighted in recent studies, including the American Water Works Association (AWWA) 2024 State of the Water Industry Report (2024). Climate change is altering the availability and timing of water supplies, with droughts and floods becoming more frequent and severe, as documented by the U.S. Global Change Research Program (2018). Additionally, the pace of digital transformation, deteriorating infrastructure, reduced availability of qualified operators, and unmet public expectations are converging,

leading to an amplification of these challenges beyond the capacity of our typical water utility approaches. Meanwhile, advancements in artificial intelligence, machine learning, and real time water quality monitoring lag in adoption relative to other industries.

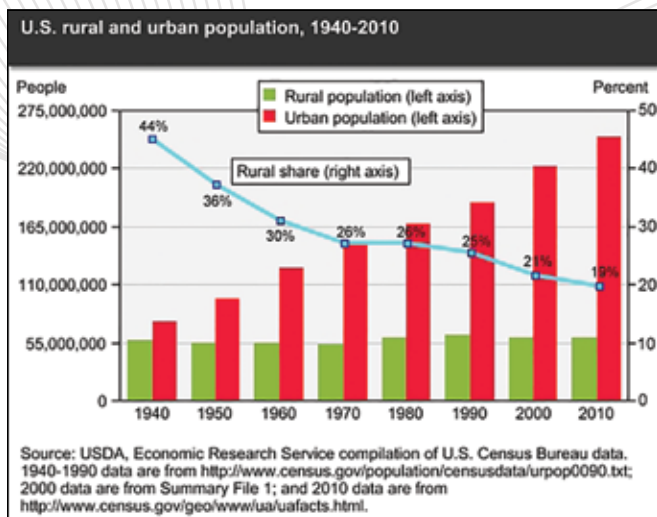
Building larger facilities and replacing aging assets, while necessary, will not be enough to navigate emerging pressures or maintain public trust. The American Society of Civil Engineers (ASCE) consistently scores our water and wastewater infrastructure below a "C" grade (ASCE, 2025), underscoring the growing need for proactive investment and innovation. A broader approach is needed that rethinks the boundaries of a utility's sphere of influence, how utilities engage in the planning of infrastructure, and how they lead within their communities.

What will it take for water utilities to move beyond reactive planning and toward a more resilient, adaptive future? How can management practices, policy frameworks, technology strategies, and resource recovery approaches evolve to meet the challenges of today and tomorrow?

Background/Context

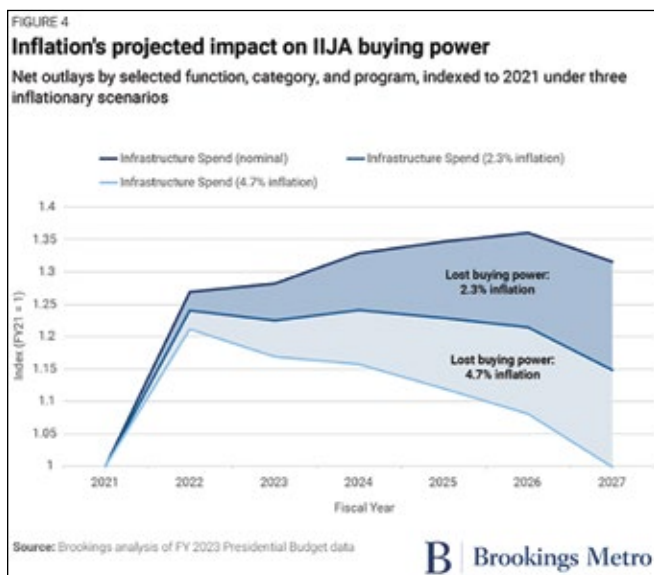
Through the 1930's- 70s, the United States invested heavily in building the nation's water infrastructure achieving extraordinary advancements in public health and quality of life. It was exciting. Since then, the industry can be characterized as stable, incremental and reactive. For decades, water utilities successfully operated under a relatively stable set of assumptions. Source water was predictable, infrastructure needs could be addressed through incremental expansion, and public trust generally followed visible investments in service reliability. Capital improvement plans (CIPs) became the primary tool for systematically repairing, replacing, and expanding assets to meet growing demands. This model delivered widespread public health gains and supported economic development throughout the 20th century.

However, the conditions underpinning these historical approaches have fundamentally shifted. Precipitation patterns are changing, snowpack receding, and droughts and floods intensifying, leading to less reliable and less predictable water supplies (USGCRP, 2018). New contaminants – including PFAS, microplastics, and pharmaceutical residues – are complicating treatment processes and regulatory compliance (AWWA, 2024). Rapid urbanization has concentrated demand on infrastructure systems that were not originally designed for such density and intensity of use. Conversely, rural populations are declining, leaving fewer people to pay the bills for ever increasing regulations and threats.



Many utilities still focus heavily on managing downstream impacts – treatment processes, distribution, and collection systems. Yet a growing share of water quality, access, and resilience challenges originate upstream: in watershed health, land use decisions, agricultural practices, and industrial activities. As noted by the U.S. Environmental Protection Agency (EPA, 2025) and the American Water Works Association (AWWA, 2021), protecting source water and addressing upstream drivers is critical to long-term system sustainability. This misalignment between where problems originate and utilities traditionally operate makes it increasingly difficult to protect water resources using conventional tools alone.

Construction and operations costs have risen sharply, fueled by inflation in materials like steel, concrete, and piping (Adie Tomer, 2023) and by ongoing global supply chain instability. Workforce constraints, particularly in skilled trades and technical positions, are compounding project delivery challenges. Extended project timelines have become common, driven by increasingly complex permitting requirements, expanded environmental and cultural reviews, and heightened public engagement expectations. These evolving pressures are exposing limitations in traditional project delivery and utility management models. Some ambitious projects reduce their scope and limit their complexity



as a means to prevail against overwhelming constraints which often drives incremental improvement instead of achieving paradigm shifts that are respectful of the public's money and trust.

Utilities also face heightened public scrutiny around project transparency, equity, and long-term resilience. Chronic underinvestment in infrastructure has led to failing assets; and emerging risks originating beyond the traditional utility boundaries highlight the growing disconnect between legacy utility practices and today's complex realities.

Understanding these shifts is essential for framing the future of water utility management. Historical successes provide important lessons, but navigating our current operating landscape will require broader recognition of the systemic pressures confronting the sector and a willingness to rethink traditional strategies.

Approach/Solution

Smarter Management Practices

Traditional utility management models often emphasize system maintenance and capital project expansion as isolated goals. However, long-term success requires a broader stewardship mindset. Utility leaders should expand their mission, vision, and values to reflect a stronger role in community leadership, broad environmental policy engagement, and direct watershed stewardship. With this foundation, utilities can build the tools and resources needed to holistically and collaboratively manage our water resources.

Several principles define smarter management in the modern context:

- **Upstream Thinking:** Many of the most significant water challenges, including contamination, scarcity, and flooding, originate outside of treatment plants and distribution systems. Utilities that engage in watershed management, regional planning, and cross-sector partnerships can better anticipate risks and protect water quality at its source. Those who take a step further upstream and engage in market policies can promote less toxic alternatives.
- **Clear Performance Metrics:** Leading utilities increasingly define success through transparent, outcome-based key performance indicators (KPIs) rather than purely output-focused measures. Metrics related to water loss reduction, energy efficiency, environmental impact, and community trust are becoming central to strategic planning.
- **Cross-Disciplinary Collaboration:** Smarter management requires breaking down traditional silos within utilities to encourage collaboration and innovation between engineering, operations, finance, regulatory compliance, and customer service teams to deliver outcomes.
- **Leadership as Stewardship:** Utility leadership today must be framed as stewardship, not simply service delivery. Utilities are stewards not only of infrastructure, but of public trust, environmental health, and intergenerational resource sustainability.

Realigning management strategies around these principles positions utilities to move from reactive maintenance to proactive, systems-based planning. It also strengthens the ability to navigate emerging pressures – from climate volatility to evolving regulatory expectations – with agility and foresight.

Stronger Policy Frameworks

Technical innovation and management improvements can only go so far without supportive policy and organizational culture. Historically, water utility regulations have focused narrowly on treatment outcomes, compliance reporting, and capital planning. While these elements

remain critical, today's evolving challenges demand a broader, more adaptive policy framework that encourages systems thinking, upstream collaboration, and resilience-focused investment.

Several principles define stronger policy in the modern context:

- **Watershed-Scale Coordination:** Water challenges often cross jurisdictional boundaries. Policies that encourage regional collaboration across utilities, stormwater agencies, land use authorities, and agricultural stakeholders can better align resources toward source protection and shared resilience goals. Some countries, particularly those which are establishing their first significant public water systems, or engaged in a form of water renaissance, such as France, Brazil, South Africa, New Zealand, have taken great steps to align their governance agencies to watershed boundaries. While utilities in the United States do not typically operate at this scale, these examples highlight the potential for US utilities to align with other agencies to optimize the regulatory and restorative investment strategies.
- **Incentives for Integrated Planning:** Funding mechanisms and regulatory programs should reward utilities for adopting the One Water approach, which integrates water supply, wastewater, stormwater, and resource recovery strategies rather than treating each as a siloed system.
- **Flexibility for Innovation:** Traditional regulatory models are often prescriptive and can unintentionally discourage the use of emerging technologies, decentralized infrastructure, or natural treatment systems. Adaptive permitting frameworks can provide the flexibility utilities need to pilot and scale innovative solutions safely. Rather than prescribed regulatory approaches, performance regulations based on outcomes can allow utilities flexibility to innovate, ultimately achieving the best result. Examples include water quality trading programs in Australia, which allow entities to meet population limits through credit markets; total daily maximum load (TMDL) approaches in the United States, which sets outcome-based pollution limits for impaired waterbodies; and the European Union's Water Framework Directive, which requires member states to achieve basin-wide ecological targets without dictating how those goals are met.
- **Proactive Risk Management:** Strong policy frameworks encourage utilities to address risks before they become failures. Resilience planning, climate risk modeling, and contingency investments should be incorporated into capital programming expectations, not treated as ancillary considerations. For example, many leading cities have begun incorporating future rainfall predictions into their analysis of historical rainfall. New York City, Boston, and Toronto have adopted predictive approaches to account for changing climate conditions in their stormwater design standards.

Strengthening the policy environment to support integrated, forward-looking strategies is essential for enabling utilities to lead, not just comply, in addressing the water challenges of the 21st century.

Faster, More Flexible Technology Adoption

Treatment technology innovation in the water sector is advancing rapidly, offering utilities new tools to respond more dynamically to emerging contaminants. However, traditional utility treatment technology adoption has often been slow, capital-intensive, and focused on large, centralized systems built with the expectation of 30- to 100-year lifespans. Meanwhile, our digital adoption has often focused on software capabilities at the expense of people and process.

Infrastructure decisions made today will need to function in a radically different world decades from now. Yet CIP processes are oriented to solve old problems, with yesterday's technology, over the course of 5-to-10-year increments, even as the pace of technological advancement and environmental change accelerates. Meeting tomorrow's challenges will require embracing faster, more flexible technologies that enable adaptability, modularity, and resource efficiency.

Several principles define a more effective approach to technology adoption:

- **Modular and Scalable Solutions:** Utilities can reduce risk and improve agility by investing in technologies that can be deployed incrementally. Modular treatment systems, decentralized infrastructure, and mobile resource recovery units allow utilities to respond to changing demands without overcommitting rigid, long-term capital structures.
- **Natural and Low-Impact Systems:** Nature-based solutions – such as constructed wetlands, green stormwater infrastructure, and soil infiltration systems – offer cost-effective, resilient alternatives to purely engineered systems. These technologies also provide co-benefits like habitat restoration, flood mitigation, and improved community aesthetics.
- **Decentralized and Distributed Systems:** Emerging infrastructure models enable treatment and resource recovery at smaller, distributed scales. Integrating decentralized options – such as satellite water recycling plants, neighborhood-scale digesters, or district energy hubs – enhances system resilience, reduces conveyance needs, and allows phased investment aligned with changing demands.
- **Digital Tools for Real-Time Management:** Emerging digital technologies, including smart metering, SCADA system enhancements, and predictive analytics, enable utilities to monitor system health in real time, anticipate failures, and optimize resource use proactively. This technology can help “right size” facilities, reduce unnecessary redundancies and costs, and improve reaction time to off-spec water.

A strategic, flexible approach to technology adoption enables utilities to manage uncertainty more effectively, deploy capital more efficiently, and contribute to broader environmental and community goals.

Expanded Resource Recovery Strategies

Historically, water utilities have been structured around a linear model: extract, treat, distribute, collect, and dispose. While this model delivered vital public health and economic benefits throughout the 20th century, it also framed water and wastewater primarily as waste management. Today's realities demand a shift toward leveraging water management as circular resource systems – recovering water, energy, and materials to improve human health, economic stability and ecologic restoration.

Several principles define a modern approach to resource recovery:

- **Water Reuse and Recycling:** Advanced treatment technologies now enable utilities to safely treat wastewater for a wide range of beneficial uses, from non-potable irrigation and industrial supply to potable reuse. Integrating reuse into long-term planning can reduce pressure on freshwater sources and improve system flexibility.
- **Energy Recovery:** Wastewater facilities increasingly serve as resource hubs, capturing biogas through anaerobic digestion, generating heat through sewer thermal exchange, and integrating onsite renewable energy systems to reduce operational costs and carbon footprints.

- **Nutrient and Material Recovery:** Innovations in treatment processes allow for the extraction of valuable materials like phosphorus, nitrogen, and biosolids. These recovered resources can support agricultural applications, energy generation, or circular industrial processes, transforming waste streams into economic assets.

Expanding resource recovery is not simply a technical adjustment; it represents a fundamental shift in how utilities define their role. Rather than managing waste at the end of the system, forward-looking utilities recognize the value inherent in the resources they steward and leverage recovery to create more resilient, adaptable, and sustainable communities.

Results/Outcomes

The transition toward integrated management, flexible technology adoption, stronger policy frameworks, and expanded resource recovery is not theoretical. Utilities are already applying these principles to build more resilient, adaptive, and sustainable water systems. Their early successes demonstrate the value of shifting from traditional, reactive models toward a stewardship-centered, future-ready approach.

The following examples illustrate how putting these strategies into practice can deliver tangible benefits for utilities, communities, and ecosystems.

Energy Recovery

British Columbia, Canada mandates thermal energy extraction from sewer systems, and Vancouver's profitable system has been in operation since 2010. The system currently produces up to 3.2 megawatts of sewage heat, with plans for expansion into new neighborhoods. A centralized plant taps the sewer, using heat exchangers and pumps to create a very low carbon comfort heating and cooling loop across Vancouver.

Toronto has implemented a cooling system that passes their Lake Ontario water intake through heat exchangers before the raw water is treated for potable use. The chilled water travels through a cold loop, cooling over 100 downtown buildings. The system displaces over 60 megawatts of peak electrical demand from Ontario's grid, contributing significantly to the city's energy efficiency and sustainability goals.

In the United States, some utilities are also extracting value from the thermal loads in water. DC Water uses a proprietary sewer heat recovery system of their effluent to heat and cool their facility buildings. Likewise, the City of Philadelphia operates a district thermal system that uses the sewer system as its source of energy.

Other utilities are enhancing biogas production by collecting fats, oils, and grease (FOG) and co-digesting it with wastewater solids. A high-strength waste with high energy content, FOG can significantly increase methane production in anaerobic systems when properly managed. Biogas is often collected, cleaned, and burned in boilers to provide heat to the digester, but it can also be used to create electricity in generators.

New York is famous for this process at their striking Newton Creek Wastewater Treatment Plant (WWTP), now an important City landmark designed by Polshek Partnership Architects. In California, East Bay Municipal Utility District uses biogas to help achieve a neutral energy balance, whereas the Chicago Metropolitan Water Reclamation District of Greater Chicago pelletizes biosolids into combustible fuels for energy production. Smaller wastewater utilities

in Denmark are transforming their facilities from significant energy consumers to energy producers, a feat that is now being replicated across the world.

Phosphorus and Nitrogen Recovery

The Blue Plains Advanced WWTP in Washington, DC, recovers phosphorous and produces a commercial fertilizer. Smaller-scale facilities in Boise, Idaho, and Madison, Wisconsin, recover nitrogen and phosphorous to improve the water quality of the Boise River. The Durham Water Resource Recovery Facility that serves Washington County, Oregon, has become a recognized leader in nutrient recovery and biosolids management. The facility is known for pioneering technologies in phosphorus harvesting and fertilizer production, turning waste into economic opportunity.

Together, these examples demonstrate how nutrient recovery can transform regulatory obligations into opportunities for innovation and cost savings.

Water Recovery and Reuse

The Orange County Water District's Groundwater Replenishment System treats wastewater to a potable standard and recharges the local aquifer, creating a sustainable water supply. Other utilities use treated effluent to combat subsidence and salt intrusion along coastlines where over extraction of groundwater has led to compressed land masses and sinking cities.

These systems highlight the essential role of water reuse in building long-term supply resilience, especially in regions facing groundwater depletion, land subsidence, or increasing climate variability.

Biosolids Reuse/Composting and Land Application

Several wastewater utilities in the United States are recognized for producing high-quality biosolids suitable for land application. Often achieving Class A certification, these biosolids are safe for use as fertilizer without pathogen restrictions. In Wisconsin, the Milwaukee Metropolitan Sewerage District produces "Milorganite," a Class A, heat-dried pelletized biosolid that is widely sold in retail stores as lawn and garden fertilizer. Milorganite is known as one of the oldest and most recognizable biosolids products in the United States. The City of Los Angeles, California, operates the Green Acres Farm to manage Class A and Class B biosolids produced for large-scale land application by the Hyperion Water Reclamation Plant. The integration of a city-owned farm makes LA Sanitation a leader in integrating biosolids reuse with sustainable agriculture.

Emerging Material Recovery

Utilities are also piloting advanced material recovery strategies, including the recovery of cellulose from the wastewater treatment plants. Waternet, the utility that serves Amsterdam and the surrounding areas in the Netherlands, extracts cellulose fibers from wastewater for reuse in construction materials and bioplastics.

Rare Earth elements and metals can also be recovered during wastewater treatment. In Switzerland, wastewater treatment plants have piloted systems to recover trace amounts of gold and rare metals from sludge, which makes the sludge less toxic. This is especially productive at facilities with high industrial effluent.

All the above initiatives reflect a shift from wastewater treatment to resource recovery and circular economy models, which not only reduce environmental impact but also provide economic benefits.

“Future-ready utilities must embed flexibility into their capital planning, anticipating a future where population patterns, water demands, environmental conditions, and technological possibilities will continue to evolve at a pace that legacy models cannot match.”

Conclusion and Recommendations

Water utilities are at a pivotal crossroads. The pressures of climate change, ecological degradation, emerging contaminants, urbanization, and shifting public expectations are exposing the limits of traditional, reactive management models. Expanding infrastructure alone will not be sufficient to meet the needs of the next century.

Building resilient, adaptable, and sustainable water systems requires a fundamental shift in how success is defined and pursued. Smarter management practices, stronger policy frameworks, faster and more flexible technology adoption, and a deeper commitment to resource recovery must become standard pillars of utility strategy.

Achieving this shift means moving beyond the assumption that bigger pipes, bigger plants, and larger facilities alone will deliver long-term success. Future-ready utilities must embed flexibility into their capital planning, anticipating a future where population patterns, water demands, environmental conditions, and technological possibilities will continue to evolve at a pace that legacy models cannot match. Capital programs must avoid locking utilities into the current paradigm for decades and become tools for stewardship – not just mechanisms for asset replacement.

Utilities must see themselves not merely as service providers but as stewards of interconnected environmental and community systems, with responsibilities extending far beyond treatment plants and distribution networks. Leadership in this context requires a broader vision: one that recognizes the full water cycle, prioritizes source protection and upstream management, and treats resource recovery as an essential operating principle.

The extraordinary gains achieved by the water sector over the past century show what is possible when ambition and vision are matched with action. Meeting the complex challenges ahead will require that same spirit, applied through new lenses – embracing integrated strategies, cross-sector collaboration, and adaptive, forward-looking planning. The future of water infrastructure depends not only on what utilities build, but on how they choose to lead.

Where to start? Utility leaders and consultants can begin by reassessing their mission, vision, and values, and align their organizational structure and culture to realize capital improvement strategies that provide resilience and flexibility. By carefully conducting a gap-analysis against future risk profiles, integrating upstream management into planning frameworks, and identifying opportunities for modular infrastructure or decentralized resource recovery can create a foundation for more adaptive systems. Early collaboration across departments and sectors will be critical. With passion, a collaborative spirit, and a common goal, we can build momentum toward systemic change.

Authors

Pete Mulvaney

Pete Mulvaney is a Technical Principal for Utility Management Consulting at Consor. With more than 25 years of experience in water and wastewater infrastructure planning, Pete specializes in helping utilities navigate complex management, policy, and technological challenges. His work focuses on developing integrated strategies that build system resilience, enhance operational efficiency, and support long-term community sustainability. Pete has led multidisciplinary teams on a wide range of projects across the United States, bringing a practical, forward-looking perspective to utility leadership and capital planning.

Guy Carpenter, PE

Guy is the Global Water Supply Practice Leader for Woolpert and has 35 years of water supply development and integrated water resources planning experience. His expertise includes utility operations, capital project budgeting and management, decision support, management consulting, stakeholder facilitation, system evaluations, water resource development support, water rights negotiations and valuations, water resource accounting and management, and permitting.

References

- Adie Tomer, C. G. (2023, February 1). The start of America's infrastructure decade: How macroeconomic factors may shape local strategies. Retrieved from Brookings: <https://www.brookings.edu/articles/the-start-of-americas-infrastructure-decade-how-macroeconomic-factors-may-shape-local-strategies>
- ASCE. (2025). 2025 Report Card for America's Infrastructure. American Society for Civil Engineers. Retrieved from <https://infrastructurereportcard.org>
- AWWA. (2021). Source Water Protection Performance Metrics. Denver, CO: American Water Works Association. Retrieved from <https://www.awwa.org/Resources-Tools/Source-Water-Protection>
- AWWA. (2024). 2024 State of the Water Industry Report. American Water Works Association. Retrieved from <https://www.awwa.org/state-of-the-water-industry>
- EPA. (2025, 05 05). Source Water Protection. Retrieved from United States Environmental Protection Agency: <https://www.epa.gov/sourcewaterprotection>
- USGCRP. (2018). Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II. Washington, DC, USA: U.S. Global Change Research Program. doi:10.7930/NCA4.2018. CS

Quality & Service When Only The Best Will Do



Anthracite	Calcite
Greensand Plus	Resin
Sand	KDF
Gravel	Pumice
Garnet	Magnesium Oxide
Activated Carbon	MangOx
Catalytic Activated Carbon	Zeolite



800-344-5770
www.ceifiltration.com
info@ceifiltration.com



**One Company For
All Your Filter Media**



Infrastructure Professionals

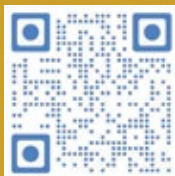
Elevating infrastructure,
together.



cmtengr.com | @cmtengrs

contact us at sehinc.com or 800.325.2055

where **innovation**
meets **impact.**



explore what's possible.

engineers | architects | planners | scientists
clean water. better places. infrastructure renewal. mobility.



Celebrating the Next Generation:



WATER'S WORTH IT[®] ESSAY CONTEST WINNERS

The Illinois, Minnesota, and Wisconsin sections of the Central States Water Environment Association (CSWEA) are proud to announce the winners of the **2025 'Water's Worth It' essay contest** for middle school students. This annual contest challenges young minds to reflect on the essential value of water and the importance of protecting this precious resource for future generations.

As part of its mission to **educate, connect, and inspire water professionals and communities**, CSWEA is committed to fostering a passion for water and environmental stewardship in the next generation.

We extend our **warmest congratulations** to this year's talented winners! Your creativity, insight, and passion for environmental stewardship inspire us all. We can't wait to see where your journeys take you – whether it is toward a future in the water industry or any path you choose to follow.

ILLINOIS

1st Place

Shreemayi Peddi

8th grade

Francis Granger

Middle School

ONE OF THE MOST UNIQUE WATER JOBS

When it comes to jobs with water, most kids only know about Marine Biologists. However, if you look

beyond these boundaries you'll see that there are so many other jobs that have

to deal with water. One of them is the occupation of Wastewater Manager. What is a Wastewater Manager?

A wastewater manager is someone who monitors the chemical levels

in wastewater and ensures the safe transportation of wastewater. They oversee the filtering and processing of water for reuse. Wastewater

Managers often work in water and wastewater facilities. Many people don't realize how cool and interesting this job is. It may seem boring, but this job is incredibly important because, without it, we wouldn't have clean water to drink.

In a day's work, Wastewater Managers are responsible for the treatment and processing of wastewater to ensure its safe discharge

into the environment. They do this by testing and monitoring water samples at water treatment plants to certify the sample's safety, which requires strict adherence to Environmental Protection Agency (EPA) regulations. The Wastewater Managers are also responsible for operating, maintaining, and repairing the equipment. In case of a malfunction, wastewater managers must operate, maintain, and repair equipment manually. If the plants are small, they might only have one person, but if they're large, they may have several. In short, Wastewater Managers check that clean water goes into the environment and take care of the machinery involved with this task.

To become a Wastewater Manager, specific qualifications are necessary. A high school diploma is the main requirement; however, an advanced education certificate, associate's degree, or bachelor's degree in Environmental Science or Wastewater Technology is greatly preferred. You also need state licensure, with licensing requirements and levels varying by authority. High skills in mathematics, science, and analytical and mechanical skills are also the baseline for this job. Furthermore, many aspiring wastewater managers become better at this job through mentorship from experienced professionals during the first few weeks of their careers.

Can you imagine living your life with dirty water? This is the importance of Wastewater Managers. They help prevent diseases such as Hepatitis A, typhoid, cholera, gastroenteritis, giardiasis, cryptosporidiosis, and E. coli infections. They prevent these diseases by continuously monitoring and using wastewater treatment. The water that we use for fishing, swimming, or anything else is prevented from





WATER'S WORTH IT. ESSAY CONTEST WINNERS

harming us because of WasteWater Managers. Along with humans, it also prevents animals from getting harmed and affects the environment in many different ways. Wildlife Trusts states that "In England, only 14% of rivers meet the standard for good ecological status, with less than half achieving these standards in Wales. The poor health of many of our waterways has a significant impact on nature, with many species in decline and some facing extinction." If our water was dirty, animals would be sick, and humans consume animals, meaning that they are also getting sick. The environment would be unstable because of how badly it affects the ecosystems.

Wastewater Management is an amazing job that many people should try. If you are willing to help the environment and our society, then this job is for you. Cleaning dirty water might not be the most amusing thing to you but it's way more fun and better than it seems because there are so many different skills and techniques that you can learn throughout this job. It is a great experience overall.

MINNESOTA

1st Place

Freeda Ali

8th grade

John Adams Middle School

THE GIFT OF CLEAN WATER: HOW ENVIRONMENTAL ENGINEERS SAVE LIVES

Over two billion people worldwide lack access to clean, safe drinking water. Clean water is not just a basic need; it's a human right. Without it, communities

face disease, poverty, and significant environmental challenges. One career that plays a vital role in addressing this global issue is environmental engineering. As someone who designed a solar-powered water purification system called *The Gift of Clean Water*, I have realized how important environmental engineers are in creating real solutions to the water crisis. In this essay, I will explore the role of ecological engineers, their training, and how they connect to my passion project.

Environmental engineers are scientists and problem solvers who use technology and design to protect our environment and public health. They help tackle various types of pollution by cleaning contaminated water, designing systems to purify dirty water, managing waste, and reducing pollution. They often work in settings such as water treatment plants, the Environmental Protection Agency (EPA), engineering firms, cities, towns, and global organizations. Without environmental engineers, people could get sick from drinking contaminated water, and cities could run out of safe drinking water, leading to floods and other disasters. Their work is essential to ensuring that our communities have access to clean water, clean air, and safe, healthy living environments.

Every day, environmental engineers work on various tasks that help improve the world around us. Their daily responsibilities include

conducting environmental assessments, designing treatment systems, collaborating with stakeholders, and monitoring compliance with regulations. They also utilize several tools and software, such as water quality kits that help determine water purity and ensure safety standards. Environmental engineers use Geographic Information Systems (GIS) for mapping and analyzing environmental issues, which helps them predict outcomes. Additionally, they employ modeling software to simulate environmental conditions, allowing for better planning. Environmental Management Systems (EMS) also streamline data collection, ensuring efficient environmental management. Whether they are working in laboratories or out in the field, their goal is always the same: to create cleaner, safer environments.

Becoming an environmental engineer takes years of study in science and engineering. Every environmental engineer needs a bachelor's degree in environmental engineering or a related field, such as civil, chemical, or general engineering. A strong foundation in math, physics, chemistry, and biology is also essential. Additionally, they must obtain a professional engineering (PE) license. Some certifications that environmental engineers may seek include the LEED Green Associate, Certified Professional Environmental Auditor (CPEA), and Board Certified Environmental Engineering Member (BCEEM), which requires about eight years of full-time environmental engineering experience, along with passing written and oral examinations. Several colleges offer environmental engineering pathways and programs, with North Carolina State University and the University of Kentucky being among my favorites. With the right training, environmental engineers are prepared to tackle critical problems that affect people and the planet.

Environmental engineers are some of the most important individuals when it comes to protecting our Earth. Without them, there would be significantly more pollution, inadequate waste management, and a reduced focus on sustainable practices, leading to a less healthy environment for humans and other life forms. They contribute to environmental protection by designing solutions for issues such as pollution control, waste management, and resource conservation. Their role is crucial in addressing the water crisis by designing and implementing solutions for water treatment, conservation, and sustainable management. Without their work, the world would face increased pollution, more illnesses, and less access to the clean water and air that we all need.

My project, *The Gift of Clean Water*, was inspired by the same mission that environmental engineers pursue daily. This project closely relates to their work because environmental engineers design systems that purify water and provide safe drinking water. Their focus on clean water, waste management, pollution control, and sustainability aligns perfectly with my project's goals. Like an environmental engineer, I sought an innovative solution that works sustainably and can be shared globally. My project utilizes renewable energy (solar) and engineering principles to improve access to clean water, just as professionals in this field do. This project helped me realize how much I care about developing solutions and how I hope to become an environmental engineer myself.

This essay is more than a project ... It's a reflection of my purpose. Environmental engineers don't just design systems ... they save lives. With every drop of clean water, they create a ripple of hope. I want to be part of that ripple. I want to build a future that flows with possibility.



WISCONSIN

1st Place

Peyton Margitan

7th grade

Bay View Middle School

LABORATORY TECHNICIAN

Have you ever wondered how much work and testing goes into making sure our water is clean and safe? About 340,000 people are working hard everyday to make sure our water is safe and drinkable. To get a better understanding of this job you need to understand

the responsibilities, qualifications, importance, and a day in the life of a Laboratory Technician.

Responsibilities

A Laboratory Technician's job is to analyze and deliver data to determine how well the treatment processes that better our water are working. There are five main tests that they conduct to make sure the water is safe to drink: the dissolved oxygen, pH, temperature, salinity and nutrients tests. Every day they prepare and process samples, operate complex equipment, and perform tests. They must stick to strict safety and quality control protocols. They record and analyze data, ensuring that every test meets its standards. For example, they manage laboratory inventories and keep up with documenting everything.

A day in the life of a Laboratory Technician will consist of first, coming to their office and reviewing/organizing incoming samples for testing. Second, they will calibrate lab equipment and run tests. Third, they will analyze and record data. Lastly they make sure that the data is accurate and compare it to previous tests. In addition they also clean up from the tests so that the next tests are accurate.

Qualifications

A qualified Laboratory Technician holds an associate's or bachelor's degree in biology or chemistry. They have received hands-on training in laboratory procedures, equipment operation, and safety protocols, ensuring accurate data. Their strong problem-solving skills help them to troubleshoot tests and maintain high standards of quality control. Additionally, their attention to detail, excellent organizational abilities, and skill to work collaboratively in fast-paced, research-driven environments make them essential for water safety.

Importance

Laboratory Technician responsibilities are critical in ensuring our water is clean and safe by doing research and reeling in precise results. Their hard work in processing samples, calibrating equipment, and maintaining strict safety and quality protocols minimizes errors and ensures that the data is as accurate as possible. This level of attention and care is extremely important so that people don't get sick from the water they are consuming. A Laboratory Technician's role in water conservation is a cornerstone in providing data and running tests.

Conclusion

In conclusion, Laboratory Technicians serve as the backbone of water safety and cleanliness. Their technical expertise, attention to detail, and commitment to water quality ensure that every experiment and test meets the highest standards of accuracy and safety. This dedication of a Laboratory Technician not only supports the reliability of important data but also keeps people's drinking water and other water safe.

References

CPUFA.org. (n.d.). CPUFA.org. Retrieved February 14, 2025, from <https://www.cfpua.org/DocumentCenter/View/1201/Whats-it-like-to-be-a-lab-technician?bidId=>
Matrix Group International. (2025). Work for water. Work for Water. Retrieved February 13, 2025, from <https://www.workforwater.org>
Thruelsen, R. (1949). Laboratory technician. Saturday Evening Post, 221 (34), 34-125.

ILLINOIS

2nd Place

Jatin Jadhav

8th grade

**Francis Granger
Middle School**

THE IMPORTANCE OF DRINKING WATER TREATMENT WORKERS

Water is the lifeblood of our planet. Its unique properties make it essential for any form of life on Earth. Covering over 70% of the Earth's surface, water shapes landforms, influences climate patterns, and nurtures ecosystems. However, its abundance does not guarantee its safety for human consumption. Water treatment is crucial in transforming natural water, often contaminated with impurities, into clean, potable water necessary for public health and industrial use.

The main objective of drinking water treatment is to ensure water is safe, clean, and suitable for human consumption. Untreated water can contain bacteria, viruses, parasites, chemicals, and other pollutants that pose serious health risks, including waterborne diseases like cholera, dysentery, and typhoid. The treatment process involves several stages: coagulation to bind small particles, sedimentation to allow larger particles to settle, filtration to remove finer particles, and disinfection to eliminate harmful pathogens. Additionally, treatment improves the taste and odor of water, making it more pleasant for daily use. Ensuring treated water meets state and federal safety standards protects communities from disease and supports a higher quality of life.

Drinking water treatment workers perform a variety of critical tasks to guarantee a safe water supply. They begin their day by testing water samples to measure contaminant levels and ensure they meet safety standards. Based on this data, they may adjust treatment processes to maintain water quality. Workers operate pumps, valves, and filtration





WATER'S WORTH IT. ESSAY CONTEST WINNERS

systems, performing routine maintenance to prevent malfunctions. They also write detailed reports and coordinate with supervisors to ensure compliance with regulations. In emergencies, such as equipment failures or contamination events, they must respond quickly to protect the public. Their work is essential in maintaining a consistent and safe drinking water supply.

Becoming a drinking water treatment worker requires a combination of education, training, and certification. While a high school diploma is often the minimum requirement, many employers prefer candidates with education in environmental science, chemistry, biology, or water treatment technology. Specialized programs offer hands-on experience with water quality management and regulatory compliance. Certification, which varies by state, is typically required and involves passing an exam on treatment principles, safety protocols, and equipment operation. Workers often pursue ongoing education to stay current with advancements in technology and regulations.

Water treatment workers must also be skilled in using various tools, software, and procedures. Analytical instruments such as pH meters, turbidity meters, and chlorine analyzers are used to monitor water quality. They must operate mechanical equipment like pumps and filters efficiently and safely. Many facilities use Supervisory Control

and Data Acquisition systems, allowing workers to monitor and control equipment remotely. Maintenance management software helps track repairs, while Geographic Information Systems assist in infrastructure management. Proper chemical handling, emergency response procedures, and safety protocols like confined space entry and personal protective equipment usage are all vital parts of their training.

Without drinking water treatment workers, the quality and availability of clean water would be severely compromised. Harmful contaminants would remain in the water supply, leading to widespread outbreaks of waterborne illnesses and making daily life unsafe and unpleasant. Communities would face a crisis of water insecurity, forcing reliance on unsafe sources and accelerating environmental damage to rivers, lakes, and groundwater. The absence of trained workers would endanger both public health and the planet's ecosystems.

In conclusion, drinking water treatment workers play a vital role in protecting public health and environmental sustainability. Their education, training, and dedication ensure that communities have reliable access to safe, clean drinking water. As global demand for clean water rises, their work becomes even more critical in preserving one of Earth's most essential natural resources. [CS](#)

VALVE SELECTION 101

QUESTION: WHICH RESILIENT WEDGE GATE VALVE OFFERS THE FOLLOWING FEATURES:

- SINGLE-BOLT, LOW-TORQUE RESTRAINT
- PREASSEMBLED JOINT RESTRAINT
- PIPE MATERIAL FLEXIBILITY
- SIGNIFICANT INSTALLATION COST SAVINGS

ANSWER:
AMERICAN SERIES 2500 WITH

ALPHA™
RESTRAINED JOINT ENDS



ALPHA™ is a licensed trademark of Romac Industries Inc. (U.S. Patent 8,894,100)

Ben Franklin is credited with saying "Time is money." The AMERICAN Flow Control Series 2500 with ALPHA™ restrained joint ends comes with the restraint accessories attached, leaving only one bolt on each end to tighten. ALPHA can be used with a variety of materials including ductile iron, cast iron, HDPE and PVC.

Low-torque, single-bolt restraint and material flexibility means reduced installation times leading to significant labor savings and less inventory. That saves time and money.

The AMERICAN Series 2500 with ALPHA™ restrained joint ends – It's the only gate valve you'll ever need.

www.american-usa.com
PO Box 2727, Birmingham, AL 35202
800-326-8051
EOE/Vets/Disabilities



DUCTILE IRON PIPE FLOW CONTROL INTERNATIONAL

SPIRALWELD PIPE STEEL PIPE



2025-26

CSWEA BUYERS' GUIDE

Welcome to the annual **Central States Water Buyers' Guide** – your trusted resource for products, services, and suppliers that support the wastewater industry across the Central States region. This guide is designed not only to connect you with the tools and expertise you need, but also to recognize and highlight the organizations whose advertising makes *Central States Water* possible. By supporting these companies, you are directly supporting the mission and ongoing success of CSWEA.

The Buyers' Guide is organized to make your search as efficient and effective as possible. It features two complementary sections:

1. **Products & Services by Category**

A detailed listing of industry products and services, along with the companies that provide them. This section allows you to quickly locate suppliers by the specific needs of your facility or project.

2. **Company Directory (Alphabetical)**

A comprehensive index of companies included in the first section. Here, you will find company names, key contacts, phone numbers, websites, and other important details to help you connect directly with the right partners.

Whether you are sourcing equipment, evaluating service providers, or planning for future projects, this guide serves as a practical tool and a reminder of the strong network of support that underpins the work of water professionals throughout our region.

LISTINGS BY CATEGORY

ACOUSTIC INSPECTION

InfoSense, Inc.

ACTIVATED CARBON

Unison Solutions, Inc.
WaterSurplus

ASSET MANAGEMENT

AE2S
CDM Smith Inc.
Donohue & Associates, Inc.

BIOGAS CONDITIONING EQUIPMENT

Unison Solutions, Inc.

BIOGAS FLARES

Energenecs

BIOSEDIMENTS REMOVAL AND DISPOSAL SERVICES

Merrell Bros., Inc.

CHEMICAL PROCESSING AND FEED SYSTEMS

Boerger, LLC
Energenecs
LAI, Ltd.

COATINGS, LINING AND CORROSION CONTROL

Dixon Engineering, Inc.
RELINER/Duran Inc.
SEH
Trotter and Associates, Inc.

COMBINED HEAT AND POWER

Kraft Power Corporation

CONTRACTORS

InfoSense, Inc.

CONTAINMENT REHABILITATION

Trotter and Associates, Inc.

CSO/SSO CONTROLS, WATER RESOURCES, DISTRIBUTION, AND COLLECTION

InfoSense, Inc.
Metropolitan Industries, Inc.
Strand Associates, Inc.

CURED-IN-PLACE-PIPE (CIPP)

Foth

DATA MANAGEMENT SOFTWARE

Waterly

DIGESTER GAS SAFETY AND GAS STREAM EQUIPMENT

Energenecs
LAI, Ltd.

DESIGN-BUILD SERVICES

AECOM
Baxter & Woodman, Inc.
CDM Smith Inc.
Crawford, Murphy & Tilly
Donohue & Associates, Inc.
WaterSurplus

DIGESTER/TANK CLEANING

Merrell Bros., Inc.

DISINFECTION/EQUIPMENT

LAI, Ltd.

ELECTRICAL INSTRUMENTATION, CONTROLS, AND GENERATORS

AE2S
Baxter & Woodman, Inc.
Donohue & Associates, Inc.
Energenecs
Gasvoda & Associates, Inc.
Integrated Process Solutions, Inc.
Metropolitan Industries, Inc.
Starnet Technologies

2025-26 CSWEA BUYERS' GUIDE

ENGINEERS/CONSULTANTS

AE2S
AECOM
Apex Engineering Group
Baxter & Woodman, Inc.
Bolton & Menk, Inc.
Carollo Engineers, Inc.
CDM Smith Inc.
Clark Dietz, Inc.
Dixon Engineering, Inc.
Donohue & Associates, Inc.
Engineering Enterprises, Inc.
Foth
Hazen and Sawyer
HR Green, Inc.
Integrated Process Solutions, Inc.
SEH
Strand Associates, Inc.
Trotter and Associates, Inc.

FILTER MEDIA

WaterSurplus

FILTRATION

AECOM
WaterSurplus

FINE SCREENS/SLIDE GATES

Gasvoda & Associates, Inc.
JDV Equipment Corp.
LAI, Ltd.

FIRE HYDRANT FLOW TESTING

Trotter and Associates, Inc.

FLOW CONTROL

AMERICAN Flow Control
Electric Pump, Inc.
Starnet Technologies

GIS AND MS4

Baxter & Woodman, Inc.
Bolton & Menk, Inc.
CDM Smith Inc.

GREENSAND PLUS

WaterSurplus

GRIT REMOVAL

JDV Equipment Corp.

GRIT REMOVAL SYSTEMS/SCREENS

Clark Dietz, Inc.
Electric Pump, Inc.
Energenecs
Gasvoda & Associates, Inc.
JDV Equipment Corp.
LAI, Ltd.

INSTRUMENTATION SERVICE AND CALIBRATION

Electric Pump, Inc.
Integrated Process Solutions, Inc.

LAND SURVEYING

SEH

LAUNDER COVERS

Launder Covers

LEAK DETECTION

Starnet Technologies

MANAGEMENT CONSULTING

Crawford, Murphy & Tilly

MANHOLE INSPECTION/ LOCATING/MAPPING

Foth

MANUFACTURER

Boerger, LLC
Starnet Technologies
WaterSurplus

METERS/METER TESTING

Starnet Technologies

MIXING SYSTEMS

JDV Equipment Corp.

NUTRIENT REMOVAL

Donohue & Associates, Inc.
Gasvoda & Associates, Inc.
LAI, Ltd.

ODOR CONTROL

AECOM
Gasvoda & Associates, Inc.
LAI, Ltd.

OPERATION SERVICES

Baxter & Woodman, Inc.
Janssen Machine Company
Waterly

PFAS TREATMENT

WaterSurplus

PROCESS MECHANICAL

Donohue & Associates, Inc.
JDV Equipment Corp.

PUBLIC INFORMATION/ COMMUNICATION

AE2S

PUMP STATIONS AND METER VAULTS

Clark Dietz, Inc.
Electric Pump, Inc.
Trotter and Associates, Inc.

PUMPS/PUMP SYSTEMS

Boerger, LLC
Electric Pump, Inc.
Gasvoda & Associates, Inc.
Metropolitan Industries, Inc.
Starnet Technologies
Strand Associates, Inc.

RATES/FINANCIAL ADVISORY

AE2S

REAL-TIME MONITORING AND CONTROL

Starnet Technologies
Waterly

REGULATORY COMPLIANCE

AE2S
Clark Dietz, Inc.
Crawford, Murphy & Tilly
Dixon Engineering, Inc.
Foth
Waterly

RESIDUALS/WASTE MANAGEMENT

AECOM
Merrell Bros., Inc.

SCADA

AE2S
Baxter & Woodman, Inc.
CDM Smith Inc.
Donohue & Associates, Inc.
Electric Pump, Inc.
Energenecs
Gasvoda & Associates, Inc.
Integrated Process Solutions, Inc.
Metropolitan Industries, Inc.
Starnet Technologies

SCREENING EQUIPMENT

Energenecs
JDV Equipment Corp.

STORAGE TANKS/RESERVOIR SYSTEMS

AECOM
Crawford, Murphy & Tilly
Dixon Engineering, Inc.
Janssen Machine Company
Strand Associates, Inc.

STORMWATER

SEH

STORMWATER DETENTION

Clark Dietz, Inc.
Crawford, Murphy & Tilly
Foth
Strand Associates, Inc.
Trotter and Associates, Inc.

STORMWATER TREATMENT AND CONVEYANCE

AE2S
AECOM
CDM Smith Inc.
Crawford, Murphy & Tilly
Foth
JDV Equipment Corp.
Strand Associates, Inc.
Trotter and Associates, Inc.

SYSTEMS INTEGRATOR

Energenecs
Integrated Process Solutions, Inc.

TANK MAINTENANCE

Dixon Engineering, Inc.
Janssen Machine Company

TANK RETROFIT AND REHAB

Dixon Engineering, Inc.

ULTRAVIOLET DISENFECTION

Gasvoda & Associates, Inc.

VALVES

AMERICAN Flow Control
Electric Pump, Inc.
LAI, Ltd.

WATER QUALITY TESTING

Clark Dietz, Inc.
Janssen Machine Company

WATER STORAGE TANK CONSTRUCTION

Dixon Engineering, Inc.

WATER/WASTEWATER COLLECTION AND DISTRIBUTION SYSTEMS

AE2S
Baxter & Woodman, Inc.
CDM Smith Inc.
Clark Dietz, Inc.
Crawford, Murphy & Tilly
Donohue & Associates, Inc.
Electric Pump, Inc.
Foth
Integrated Process Solutions, Inc.
Janssen Machine Company
Strand Associates, Inc.

WATER/WASTEWATER PUMPS AND SYSTEMS

AECOM
Baxter & Woodman, Inc.
Boerger, LLC
CDM Smith Inc.
Clark Dietz, Inc.
Crawford, Murphy & Tilly
Donohue & Associates, Inc.
Electric Pump, Inc.
Energenecs
Foth
Gasvoda & Associates, Inc.
LAI, Ltd.
Starnet Technologies
Strand Associates, Inc.
Trotter and Associates, Inc.
WaterSurplus

WATER/WASTEWATER STORAGE TANKS

AECOM
Baxter & Woodman, Inc.
CDM Smith Inc.
Clark Dietz, Inc.
Crawford, Murphy & Tilly
Dixon Engineering, Inc.
Foth
Integrated Process Solutions, Inc.
Janssen Machine Company
Strand Associates, Inc.
Trotter and Associates, Inc.

WATER/WASTEWATER TREATMENT SYSTEMS

AE2S
AECOM
Baxter & Woodman, Inc.
Bolton & Menk, Inc.
CDM Smith Inc.
Clark Dietz, Inc.
Crawford, Murphy & Tilly
Donohue & Associates, Inc.
Electric Pump, Inc.
Energenecs
Foth
Gasvoda & Associates, Inc.
Integrated Process Solutions, Inc.
Janssen Machine Company
LAI, Ltd.
Metropolitan Industries, Inc.
Starnet Technologies
Strand Associates, Inc.
Trotter and Associates, Inc.
WaterSurplus

LISTINGS BY COMPANY NAME

A



AE2S

901 East Fish Lake Road, Suite 184
Maple Grove, MN 55369
763-463-5036
abbie.brown@ae2s.com
www.ae2s.com

AECOM

130 East Randolph Street, Suite 2400
Chicago, IL 60601
312-373-7700
businessinquiry.americas@aecom.com
www.aecom.com



AMERICAN FLOW CONTROL

PO Box 2727
Birmingham, AL 35202
800-326-8051 Fax: 800-610-3569
afcsales@american-usa.com
www.american-usa.com



APEX ENGINEERING GROUP

3800 8th Street N, Suite 101
St. Cloud, MN 56303
320-640-9720
michael.quamme@apexenggroup.com
www.apexenggroup.com

B

BAXTER & WOODMAN, INC.

8678 Ridgfield Road
Crystal Lake, IL 60012
815-459-1260 Fax: 815-455-0450
dwold@baxterwoodman.com
www.baxterwoodman.com



BOERGER, LLC

2860 Water Tower Place
Chanhassen, MN 55317
612-435-7300 Fax: 612-435-7301
america@boerger.com
www.boerger.com



BOLTON & MENK, INC.

1960 Premier Drive
Mankato, MN 56001
952-256-3133
sarah.pint@bolton-menk.com
www.bolton-menk.com

C

CAROLLO ENGINEERS, INC.

811 East Washington Avenue, Suite 400
Madison, WI 53703
608-251-8983
lbusch@carollo.com
www.carollo.com

CDM SMITH INC.

125 South Wacker Drive, Suite 2510
Chicago, IL 60606
312-346-5000
atassia@cdmsmith.com
www.cdmsmith.com

CLARK DIETZ, INC.

125 West Church Street
Champaign, IL 61820
217-373-8900 Fax: 217-373-8923
www.clarkdietz.com

CRAWFORD, MURPHY & TILLY

2750 West Washington Street
Springfield, IL 62702
217-787-8050
questions@cmtengr.com
www.cmtengr.com

D

DIXON ENGINEERING, INC.

1104 Third Avenue
Lake Odessa, MI 48849
800-327-1578 Fax: 616-374-7116
dixon@dixonengineering.net
www.dixonengineering.net



DONOHUE & ASSOCIATES, INC.

3311 Weeden Creek Road
Sheboygan, WI 53081
920-208-0296 Fax: 920-208-0402
mgerbitz@donohue-associates.com
www.donohue-associates.com

E

ELECTRIC PUMP, INC.

4280 East 14th Street
Des Moines, IA 50313
800-383-7867 Fax: 515-265-8079
info@electricpump.com
www.electricpump.com

ENERGENECS

700 East Milan Drive
Saukville, WI 53080
263-377-6360
info@energenics.com
www.energenics.com

ENGINEERING ENTERPRISES, INC.

52 Wheeler Road
Sugar Grove, IL 60554
630-466-6700 Fax: 630-466-6701
eeiinfo@eeiweb.com
www.eeiweb.com

F

FOTH

2121 Innovation Court
De Pere, WI 54115-5095
920-497-2500. Fax: 920-497-8516
www.foth.com

G



GASVODA & ASSOCIATES, INC.

1530 Huntington Drive
Calumet City, IL 60409
708-891-4400
info@gasvoda.com
www.gasvoda.com

H

HAZEN AND SAWYER

445 Minnesota Street, Suite 1500
St. Paul, MN 55101
651-256-9534
wmartin@hazenandsawyer.com
www.hazenandsawyer.com

HR GREEN, INC.

2550 University Avenue West, Suite 400N
St. Paul, MN 55114
651-644-4389
info@hrgreen.com
www.hrgreen.com

I



INFOSENSE, INC.

8116 South Tryon Street, Suite B3-203
Charlotte, NC 28273
704-644-1164
sales@infosense.com
www.infosense.com



INTEGRATED PROCESS SOLUTIONS, INC.

PO Box 26
Fosston, MN 56542
218-435-1703
ips@ipsamerica.biz
www.ipsamerica.biz

J



JANSSEN MACHINE COMPANY

23062 Highway 34
Barnesville, MN 56514
218-493-4470 Fax: 218-493-4441
sales@janssenmachine.com
www.janssenmachine.com



JDV EQUIPMENT CORP.

104 Fulton Street
Boonton, NJ 07005
973-366-6556
sales@jdvequipment.com
www.jdvequipment.com

K

KRAFT POWER CORPORATION

4039 Millennium Blvd., SE
Massillon, OH 44646
330-830-4158
info@kraftpower.com
www.kraftpower.com

L



LAI, LTD.

5400 Newport Dr, Suite 10
Folling Meadows, IL 60008
847-392-0990 Fax: 847-392-1095
ttack@lai-ltd.com
www.lai-ltd.com

M



MERRELL BROS., INC.

8811 West 500 North
Kokomo IN 46901
800-663-8830 Fax: 574-699-7478
info@merrellbros.com
www.merrellbros.com



METROPOLITAN INDUSTRIES, INC.

37 Forestwood Drive
Romeoville, IL 60446
815-886-9200 Fax: 815-886-6932
sales@metropolitanind.com
www.metropolitanind.com

2025-26 CSWEA BUYERS' GUIDE

S



SEH

3535 Vadnais Center Drive
St. Paul, MN 55110
651-490-2000 Fax: 888-908-8166
mjensen@sehinc.com
www.sehinc.com

STARNET TECHNOLOGIES

8520 Hollander Drive
Franksville, WI 53126
262-886-0228
info@starnet-wi.net
www.starnettech.com



STRAND ASSOCIATES

STRAND ASSOCIATES, INC.

910 West Wingra Drive
Madison, WI 53715
608-251-4843
marketing@strand.com
www.strand.com

T



TROTTER AND ASSOCIATES, INC.

40W201 Wasco Road, Suite D
St. Charles, IL 60175
630-587-0470
administration@trotter-inc.com
www.trotter-inc.com

U

UNISON SOLUTIONS, INC.

5451 Chavenelle Road
Dubuque, IA 52002
563-585-0967 Fax: 563-585-0970
sales@unisonsolutions.com
www.unisonsolutions.com

V



WATERLY

4216 Belson Lane
Crystal Lake IL 60014
815-529-5779
mandy@waterclick.tech
www.waterly.com

WATERSURPLUS

726 Beacon Street
Loves Park, IL 61111
800-919-0888 Fax: 815-636-8844
info@watersurplus.com
www.watersurplus.com

ClarkDietz

Engineering Quality of Life®



integrated WATER QUALITY SOLUTIONS

WATER | WASTEWATER | STORMWATER

Illinois | Indiana | Kentucky | Michigan | Wisconsin

www.clarkdietz.com

AECOM

Squaring the circle

Delivering a better world

aecom.com/water

CALL FOR ABSTRACTS



99TH ANNUAL MEETING
*Flowing Together:
Connecting the Water Workforce*

MAY 19-21, 2026

St. Paul Rivercentre, MN



The Central States Water Environment Association (CSWEA) Technical Program Committee is responsible for technical sessions at the Annual Meeting. Participants in any sector of the water environment field are cordially invited to submit abstracts for evaluation. Abstract submissions that will be given highest consideration include:

- Submissions with a focus on day-to-day treatment, by people with hands-on experience at facilities.
- Topics of emerging concern or current industry focus, such as climate driven impacts on POTWs or a One Water planning approach.
- Case studies presented from diverse perspectives, such as operators, young professionals, middle management, and utility leaders.
- Research topics and case studies related to new and innovative technologies.
- Submissions focusing on local projects or issues.

Abstracts will be scored by the Technical Program Committee based upon the following criteria:

- 1. Originality and status of subject:** The abstract should present new concepts or new and novel applications of established concepts. It also may describe substantial improvements of existing theories or present significant data in support or in furtherance of those theories. Studies with incomplete results or ill-defined problem statements should be avoided.
- 2. Content:** Abstracts can either be technical or non-technical in nature. In either case, it should be evident that the abstract clearly describes the entirety of the content that would be presented in a technical session. The abstract content should be objective and non-biased toward specific products, suppliers, approaches, or otherwise. Each abstract should contain clear purpose and impact for conference attendees.
- 3. Water environment significance:** The author should clearly describe the pertinence of the abstract content to a practical area of concern or interest within the water quality, wastewater and/or stormwater management industries.
- 4. Adequacy of abstract preparation:** The adequacy of an abstract is often indicative of the final presentation quality. The abstract summarizes the presentation; therefore, it should provide a concise summary of objectives, scope, general procedures, results, and conclusions. To receive full credit for abstract format, submitters are encouraged to use the downloadable Abstract Template available on the CSWEA website. Submittal of presentation slides or a generic product brochure in place of an abstract will not be considered.

Please have all materials ready before starting the submission process. You cannot save and return to the online form once you start the abstract submission process. Presenting authors will be notified in January 2026 of the acceptance or rejection of the abstract. On behalf of the Technical Program Committee, thank you for your interest in – and contributions to – this year's technical program!

Shanna Czeck

2026 Chair, Technical Program Committee
City of St. Cloud, MN

Shanna.Czeck@ci.stcloud.mn.us

Submit abstracts by 11:59 PM CST on November 30, 2025 at www.cswea.org

For Technical Abstracts

- Highlight desktop, benchtop, pilot study, full-scale projects, etc.
- Includes data, figures, and methodology.

For Non-Technical Abstracts

- Highlight soft skills, utility management and leadership.
- Does not require data but should allow for clear interpretation of the author's intent.

Necessary Elements of Abstract

- Use the downloadable [Abstract Template](#) available on the CSWEA website that includes:
 - Title
 - Author(s)
 - Introduction/Background
 - Main Content
 - Broader Impacts
- Include all tables, figures, and references.
- Full abstract shall be 3-6 pages in length.

Online Submission

- Enter the Abstract Title.
- Enter an Abstract Summary (120 words max)
- Select your presentation format (oral or poster)
- Import Presenter and Co-Author affiliations and contact information.
- Choose your applicable topic area(s)
- Upload your abstract document (PDF with filename format: Last Name-Abstract Title).

**Determine
Abstract Type**



**Abstracts
Must Contain**



**Submit
Abstract Online**



Looking for abstract topic ideas? Consider these!

IMPLEMENTATION of OPERATIONS and MAINTENANCE:

- Efficiency (pumps, motors, UV disinfection, HVAC, etc.)
- Technology, SCADA, Web-based maintenance programs, GIS applications.
- Troubleshooting and Optimization – Traditional facilities (activated sludge, BNR), new processes (nutrient recovery), etc.
- Facility case studies
- Startup case studies

ADVANCEMENTS in LIQUIDS TREATMENT:

- Enhanced primary treatment
- Secondary treatment advancements and intensification
- Nutrient removal
- Tertiary treatment/removal
- Reuse
- Disinfection
- Innovative controls approaches

WATERSHEDS and STORMWATER MANAGEMENT:

- Climate change-driven impacts on treatment plants
- Green infrastructure solutions and best management practices
- Implementing MS4 permit requirements
- Anti-degradation and other regulatory issues
- Using grants and other funding sources to implement stormwater management as part of CIP projects
- Habitat or groundwater protection or restoration
- Non-point source pollution modeling
- Water quality trading and watershed management issues and initiatives, including adaptive management
- Total maximum daily loads - point and non-point sources
- Public education and outreach

UTILITY MANAGEMENT:

- Communications
- Employee recruitment, retention, and development
- Succession planning
- Project funding
- Utility rate development and reviews
- Asset management
- Emergency planning
- Significant industrial users and industrial pretreatment
- Emergency response/repairs

RESOURCE RECOVERY and ENERGY OPTIMIZATION:

- Nutrient recovery
- High strength waste and co-digestion
- Digester gas production, treatment and use
- Digestion advancements including thermal processes
- Heat recovery case studies
- Alternative energy use
- Energy management and savings to utility management

COLLECTION SYSTEMS:

- Rehabilitation technologies/methods
- Rehabilitation case studies
- Design and Operation
- Public education -using and protecting the system
- CMOM program development and implementation
- Green infrastructure case studies
- Infiltration/inflow management case studies
- Stormwater and combined sewer overflow management
- Stormwater conveyance

RESEARCH and DESIGN:

- New/innovative technology research and application
- Nutrient removal technologies
- Sustainability in design and construction
- Toxics/emerging pollutants monitoring and control
- Treatment design
- Wastewater reuse, applications, technology and regulatory issues
- Wastewater surveillance

RESIDUALS, SOLIDS AND BIOSOLIDS:

- Advances in thickening and dewatering
- Pollutants of Emerging Concern – PFAS, microplastics
- Standard or advanced treatment and stabilization
- Environmental management systems – National Biosolids Partnership
- Public education and awareness, case studies
- Fertilizer production – Class A case studies
- Regulatory compliance

GENERAL:

- Laboratory issues and bench-scale studies
- Pretreatment, industrial treatment, and pollution prevention
- Pollutants of emerging concern – PFAS, chlorides, etc.
- Public education to address emerging concerns – chlorides, leachate, rags, flushable wipes, etc.
- Regulatory issues
- Facility security issues
- Engineering ethics training
- Collection system/treatment plant odor control

SOFT SKILLS/LEADERSHIP:

- Leadership skills
- Managing ill or injured employees
- Generational integration
- Anti-harassment and discrimination training for Managers
- Employee performance evaluations
- Union negotiations
- Handling the grievance and arbitration process
- Managing in a union environment
- Labor Laws
- Management rights for Managers
- Social media and the workplace



99TH ANNUAL MEETING *Flowing Together: Connecting the Water Workforce*

MAY 19-21, 2026
St. Paul Rivercentre, MN



Our role in protecting the public and the environment are often undervalued and invisible to the very public that we protect. Whether in design, academia, equipment manufacture and supply, management, or operations, we all know individuals who have successfully addressed unique and challenging issues. Our awards program offers the opportunity to receive recognition for these deserving professionals.

Each year, one of CSWEA's top priorities is to recognize the efforts of our members and water and wastewater professionals at all levels. We also seek to provide top-quality nominees to the Water Environment Federation (WEF) each year for national level recognition. Don't miss this opportunity to provide recognition to deserving water quality professionals.

It's time to brag a little about the accomplishments of our members. To nominate someone is straightforward: fill out the nomination form at <https://bit.ly/39KRsaE> with as much information as possible and submit it to CSWEA.

In order for you or a deserving colleague to be recognized, please submit a nomination to the Central States Water Environment Association and/or WEF for one of the many awards available.

Below is a listing of the award opportunities. Please carefully review the various awards available and nominate one of our many deserving members. Please note that award submittals need to be made by November 30, 2025 for awards presented by CSWEA to allow distribution to the respective CSWEA or WEF Awards Committees for consideration. CSWEA will present the winners with their awards at the 99th Annual Meeting Awards Banquet.

2026 CSWEA & WEF Award nominations now being accepted

Nominations are now being accepted for the following CSWEA and WEF awards and should you be aware of a worthy nominee we ask that you please nominate them. Note that it is OK to self-nominate. Each award is briefly described below and complete information may be found on www.cswea.org.

WEF AWARDS presented at CSWEA Awards Banquet

Arthur Sidney Bedell Award:

The Bedell is a federation award that is given annually to one recipient in recognition of outstanding achievement in the sewerage and wastewater treatment works field, as related particularly to the problems and activities of the member association. The Bedell Award Subcommittee selects the nominations, and the award is presented at the CSWEA Annual Meeting.

William D. Hatfield Award:

The Hatfield Award is a federation award given annually to one recipient in recognition of outstanding operation of a wastewater treatment plant. Each State Section may nominate one person per year and submit it to the Hatfield subcommittee. This award is presented at the CSWEA Annual Meeting.

George W. Burke Safety Award:

The Burke Award is made annually by WEF to a municipal or industrial wastewater facility for promoting an active and effective safety program.

Each State Section Committee can nominate a facility and the nominations are then sent to the general awards committee. The winner will be presented with the Burke Safety Award at the CSWEA Annual Meeting.

Lab Analyst Excellence Award:

This is a WEF award that is given annually to one recipient in recognition of outstanding achievement in the area of water quality analysis. Each State Section Laboratory Committee may nominate one person. This award is presented at the CSWEA Annual Meeting.

CSWEA AWARDS presented at CSWEA Awards Banquet

Radebaugh Award:

The Radebaugh Award is given to the author of a deserving paper presented at the previous year's annual meeting. The Radebaugh Award Subcommittee selects the winner and the award is presented at the CSWEA Annual Meeting.

Operations Award:

The Operations Award is a Central States award that is given annually to one recipient in each state. The purpose of this award is to recognize operators of wastewater treatment facilities who are performing their duties in an outstanding manner and are demonstrating distinguished professionalism. The States Sections' Operations Committee makes the selection and each State Section winner will receive the award at the CSWEA Annual Meeting.

Industrial Water Quality Achievement Award:

The award is given at the CSWEA Annual Meeting to one industry per year in recognition of outstanding contributions in waste minimization, pollution prevention, environmental compliance, and environmental stewardship. Each State Section Industrial Committee may nominate one facility per year.

Bill Boyle Educator of the Year Award:

This award is given to one teacher per year in recognition of outstanding education assistance to students of any level in the study of the water environment. The award is presented at the CSWEA Annual Meeting.

Collection System Award:

This award is given annually to one member from each section in recognition of outstanding contributions in advancing collection system knowledge and direct or indirect improvement in water quality. Each State Section Collection System Committee can nominate one individual per year with the selected candidate receiving the award at the CSWEA Annual Meeting. The recipient of the Association Award shall be nominated annually for the WEF Collection System Award.

Ryan Giefer Outstanding Young Professional Award:

This award is given annually to one member from each state section in recognition of the contributions of young water environment professionals to CSWEA and to the wastewater collection and treatment industry. This award is presented at the CSWEA Annual Meeting.

Academic Excellence Award:

The Academic Excellence Award is given to one student per year from each eligible institution in the state section hosting the Annual Conference. (Wisconsin is hosting the next conference.) An eligible institution shall be a college or university having a recognized graduate or under-graduate program in engineering or biological sciences at an eligible institution. The candidate shall be selected by the department chair or other designated person at the eligible institution. Selected candidates are able to attend the CSWEA Annual Meeting with expenses paid, to receive their award and scholarship.

Central State Section Safety Award:

The CSWEA Facility Safety Award is made annually by CSWEA to a municipal or industrial wastewater facility within each State Section in recognition of active and effective safety programs from Burke Award submissions and the awards are presented at the CSWEA Annual Meeting.

Water Stewardship Award: This award recognizes and honors the contributions of an individual for outstanding humanitarian service to improving and sustaining our global water environment.

Sustainability & Green Infrastructure Award:

Established in 2017, this award recognizes and honors the contributions of an individual or organization for projects at their organization that support sustainability in the water environment or make use of green infrastructure in the design of water reclamation facilities, or stormwater/wastewater conveyance or treatment processes.

Water Technology Innovator Award:

Established in 2019, this award recognizes individuals or groups that look beyond the traditional water and wastewater operational models and incorporate or advance sustainable principles and cutting-edge practices, with a focus on resource recovery, efficiency, and sustainability.

WEF AWARDS presented at WEFTEC

Charles Alvin Emerson Medal:

This award is presented by WEF to an individual whose contributions to the wastewater collection and treatment industry most deserve recognition. Areas of involvement include membership growth, water resource protection, improved techniques of wastewater treatment and fundamental research.

Harry E. Schlenz Medal:

This award is presented by WEF and recognizes the achievements of an individual outside of the water environment profession, who takes up the banner of environmental public education. This person is typically in the journalism, film or video production field.

Richard S. Englebrecht International Activities Service Award:

This award is presented by WEF and recognizes sustained and significant contributions to the furtherance and improvement of the activities of the Water Environment Federation in the international field.

Submit your nomination at www.cswea.org



OCTOBER 14



CSWEA OPERATOR TRAINING WEBINAR – ACTIVATED SLUDGE II

1.5 CEU's for IL, WI & MN Operators
1.8 PDH's for all Professional Engineers

NOVEMBER 6



2025 MN CONFERENCE ON THE ENVIRONMENT Minneapolis Convention Center | Minneapolis, MN

NOVEMBER 18



CSWEA OPERATOR TRAINING WEBINAR – FUNDAMENTALS OF COLLECTIONS SYSTEMS

1.5 CEU's for IL, WI & MN Operators
1.8 PDH's for all Professional Engineers

NOVEMBER 18



2025 IL R2E2 SEMINAR

Fox Metro Water Reclamation District,
682 State Rte 31, Oswego, IL 60543

DECEMBER 11



IL SECTION MEETING

Alter Brewing Company
2300 Wisconsin Ave Ste 213, Downers Grove, IL 60515



Realize More®

Our dedicated team of drinking water, wastewater, and stormwater engineers offer practical, cost-effective solutions using a holistic and sustainable approach.

If you're trusted to protect public health or the environment, **we can help.**

Hazen

hazenandsawyer.com



Providing engineering and technical management solutions that **build communities** and **improve lives.**



HRGREEN.COM

WATER + BROADBAND + CONSTRUCTION
ENVIRONMENTAL + GEOSPATIAL + LAND DEVELOPMENT
MUNICIPAL+ PLANNING + TRANSPORTATION



Central States Water is made possible by the companies below who convey their important messages on our pages. We thank them for their support of CSWEA and its publication and encourage you to contact them when making your purchasing decisions. To make it easier to contact these companies, we have included the page number of their advertisement, their phone number, and, where applicable, their website.

COMPANY	PAGE	TELEPHONE	WEBSITE
Advanced Engineering and Environmental Services (AE2S)	6	763-463-5036	www.ae2s.com
AECOM	56	314-429-0100	www.aecom.com
AMERICAN Flow Control	50	205-325-7701	www.american-usa.com
Apex Engineering Group	26	701-373-7980	www.apexenggroup.com
Baxter & Woodman, Inc.	40	815-459-1260	www.baxterwoodman.com
Boerger, LLC	23	877-726-3743	www.boerger.com
Bolton & Menk, Inc.	34	507-625-4171	www.bolton-menk.com
Carollo Engineers, Inc.	9	608-251-8983	www.carollo.com
CDM Smith	15	651-772-1313	www.cdmsmith.com
CEI Carbon Enterprises, Inc.	46	800-344-5770	www.ceifiltration.com
Clark Dietz Inc	56	262-657-1550	www.clark-dietz.com
Crawford, Murphy & Tilly, Inc.	46	217-787-8050	www.cmtengr.com
Crete Specialty Products	39	262-542-8153	www.crete-seals.com
Dixon Engineering	29	800-327-1578	www.dixonengineering.net
Donohue & Associates, Inc.	64	920-208-0296	www.donohue-associates.com
Electric Pump, Inc.	12	800-211-6432	www.electricpump.com
Energenecs	33	262-377-6360	www.energenecs.com
Engineering Enterprises, Inc.	40	630-466-6700	www.eeiweb.com
Force Flow/Halogen Valve Systems	11	925-686-6700	www.forceflowscales.com
Foth Infrastructure & Environment	37	920-497-2500	www.foth.com
Gasvoda and Associates	63	708-891-4400	www.gasvoda.com
Hazen and Sawyer	61	651-256-9534	www.hazenandsawyer.com
HR Green, Inc.	61	800-728-7805	www.hrgreen.com
InfoSense, Inc.	17	877-747-3245	www.infosense.com
Integrated Process Solutions (IPS)	26	218-435-1703	www.ipsamerica.biz
Janssen Machine Company	34	218-493-4470	www.janssenmachine.com
JDV Equipment Corporation	40	973-366-6556	www.jdvequipment.com
JWC Environmental	10	877-873-4392	www.jwce.com
Kraft Power Corporation	17	800-969-6121	www.kraftpower.com
LAI, Ltd.	4	847-392-0990	www.lai-ltd.com
Lakeside Equipment	2, 7	630-837-5640	www.lakeside-equipment.com
LW Allen/Altronex	30	800-362-7266	www.lwallen.com
Merrell Bros., Inc.	29	800-663-8830	www.merrellbros.com
Metropolitan Industries	13	815-886-9200	www.metropolitanind.com
Nordic Water	20	877-283-0887	www.nordicwater.com
Pittsburg Tank & Tower	29	270-826-9000	www.pttg.com
RELINER/Duran Inc.	17	800-508-6001	www.reliner.com
SEH	46	651-490-2000	www.sehinc.com
Starnet Technologies	19	262-886-0228	www.starnettech.com
Strand Associates, Inc.	28	608-251-4843	www.strand.com
Sulzer	18	888-390-8588	go.sulzer.com/trusted-xfp
Trotter & Associates, Inc.	25	630-587-0470	www.trotter-inc.com
Unison Solutions, Inc.	15	563-585-0967	www.unisonsolutions.com
Waterly	3	833-492-8370	www.waterlyapp.com
WaterSurplus	33	800-919-0888	www.watersurplus.com



**WE STIR UP
EVERYTHING
BUT TROUBLE.**

Vaughan
Unmatched Reliability

Rotamix

For hydraulic mixing without headaches, choose the reliable Vaughan Rotamix System. Blend lower operating and maintenance costs with a more efficient breakdown of solids. Your digesters, sludge storage tanks, and equalization basins won't know what hit them.

*Choose the unmatched reliability of Vaughan.
Free sample CFD's upon request.*



888-249-CHOP | **ChopperPumps.com**

GUARANTEED PERFORMANCE | NO MOVING PARTS IN THE TANK | FOCUSED MIXING

LOCAL REP

GASVODA & ASSOCIATES, INC.

1530 Huntington Drive,
Calumet City, IL 60409

Phone: 708-891-4400

Fax: 708-891-5786

info@gasvoda.com

One Innovative Solution at a Time

Wastewater | Drinking Water | Stormwater



Liquid to Dried Biosolids Conversion

The City of Stevens Point faced annual hardships related to recycling biosolids as a liquid fertilizer. To mitigate the issue, the solids handling process and ancillary equipment were overhauled. The City implemented Wisconsin's first paddle dryer, specially adapted to operate on excess anaerobic digester biogas, cutting natural gas costs by 90%. By converting liquid biosolids into a marketable dried product, they eliminated the need for three million gallons of liquid storage, allowing the tanks to be repurposed for other uses. The result: Biosolids previously difficult to dispose of are converted into a valuable Class A dried fertilizer.

 **DONOHUE**

